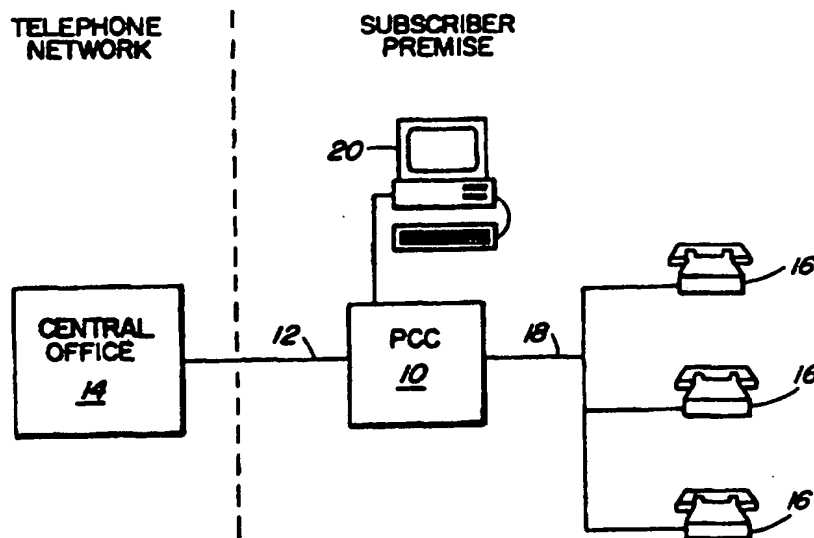




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04M 1/57, 1/66, 1/00		A1	(11) International Publication Number: WO 97/28631
			(43) International Publication Date: 7 August 1997 (07.08.97)
(21) International Application Number: PCT/CA97/00059		(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 29 January 1997 (29.01.97)		Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(30) Priority Data: 60/011,019 1 February 1996 (01.02.96) US			
(71) Applicant: NORTHERN TELECOM LIMITED [CA/CA]; World Trade Center of Montreal, 8th floor, 380 St. Antoine Street West, Montreal, Quebec H2Y 3Y4 (CA).			
(72) Inventors: SWAN, Richard, Arthur; 5120 Lincolnshire Court, Dallas, TX 75287 (US). MARLOW, John, Wallace; 801 Bonbright Court, Raleigh, NC 27614 (US). PETERSON, Mendel, Lazear, Jr.; Apartment #328, 1520 Richardson Drive, Richardson, TX 75080 (US).			
(74) Agent: GRANCHELLI, John, A.; Northern Telecom Limited, Patent Dept., P.O. Box 3511, Station "C", Ottawa, Ontario K1Y 4H7 (CA).			

(54) Title: TELECOMMUNICATIONS FUNCTIONS MANAGEMENT SYSTEM



(57) Abstract

A personal communications controller (PCC, 10) may be programmed with a customized service configuration (52) based on which telecommunications functions in connection with multiple telephone terminals (16) are managed. The PCC system is designed to provide enhanced service value to all of the telephone terminals throughout a residence coupled to a single telephone communication line (12) entering the residence. The PCC may provide service differentiation on an individual basis to the telephone terminals and, furthermore, differentiated treatment may be effected on a per telephone call basis. The customized service configuration may be generated using a personal computer (20) from which it is downloaded to the PCC.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgyzstan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroon	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

- 1 -

TELECOMMUNICATIONS FUNCTIONS MANAGEMENT SYSTEMBackground Of The Invention

This invention relates generally to telecommunication management systems and, in particular, to a programmable personal communications controller system whereby a user may effectively manage residential telecommunication functions in accordance with a personal service configuration programmed therein. The service configuration defines how the system responds to various attributes associated with either incoming or outgoing calls.

Intelligent telephone terminals have been evolving in terms of features and services supported thereby for management of telecommunications functions. Such intelligent terminals are typically characterized by a microprocessor based telephone set having a liquid crystal display (LCD), which together with the common telephone keypad and a few softkeys provide a user interface whereby the terminal may be programmed and controlled for personal operation. Furthermore, these intelligent telephone terminals are known to be equipped with one or more of the following conventional functionality: a dual tone multi-frequency (DTMF) generator, a DTMF decoder, a digital telephone answering device (DTAD), a time of day (TOD) clock and a calling line identification (CLID) device.

However, the technology capabilities and corresponding service and feature opportunities in existing intelligent telephones have outgrown the capacity of a user to personalize and configure the telephone. The user interface represents a bottleneck to full personalization which point is best illustrated by the following example.

Nortel's 9516 telephone set, a commercially available intelligent telephone terminal having a TOD clock, a two line LCD display and CLID capabilities provides the ability to define a feature key that displays call duration. When you press the key, the LCD display

- 2 -

changes from displaying details about the call, either caller identification for terminating call or calling information for originating calls, to displaying call duration time. Press the key again and the display returns to call details.

Other intelligent telephone sets are known to provide a similar call timer that is continuously displayed on their LCD display. A call timer function can be assigned to one of the programmable keys provided on the set. It's function is to reset the timer to zero.

Still other vendors have telephone sets with a call duration timer on their LCD display. Programming of the telephone set simply enables or disables the call timer on a permanent basis.

These represent at least three different variations on implementation of the call timer feature. Telephone set manufacturers generally pick a specific implementation and then provide a programming function whereby a user may only enable or disable this feature.

It would not be difficult to implement the several variations within the telephone set firmware. The difficulty is in providing a configuration setup interface using the LCD display and keypad of the intelligent terminal that empowers the user to configure the call timer feature to his particular personalization.

Speed calling directories is another example where the inadequacy of the telephone display/keypad user interface. Many intelligent telephones now have an internal directory of name and telephone number lists. Typically, these telephones do not include an alphanumeric keyboard so that names are entered from the digit keypad. For instance, the "2" key is for entering the letters "ABC"; press once for "A", press twice for "B", a third press for "C".

Furthermore, any telecommunication management functions provided by the intelligent telephone terminal are limited to itself and thus it is not particularly

- 3 -

useful in a residence having a multiple telephone extension wiring configuration connected to which it is common to find several telephone sets. Still further, there is no way to add incremental service functionality to existing telephone terminals without either replacing the terminal or at a minimum effecting some kind of hardware modification, upgrade.

It is, therefore, desirable to have adjunct system that provides flexibility for a user to truly personalize its configuration and whereby enhanced telecommunications services and features are supported for multiple telephone terminals within the user's residence.

Summary Of The Invention

It is an object of the present invention to provide a new and improved method and system for managing telecommunication functions.

The invention, therefore, according to a first exemplary broad aspect provides in a telecommunications functions management system for a telecommunications service subscriber having a plurality of telephone terminals associated with a plurality of alerters, said telephone terminals being communicatively coupled to a telecommunications network which provides an identifier of an incoming call directed to the subscriber, a method for managing alerting of the incoming call comprising the steps of: providing one or more predetermined call identifiers; associating each predetermined call identifier with one or more alerters of the plurality of alerters; correlating the incoming call identifier to a particular identifier of the one or more predetermined call identifiers; and activating the one or more alerters associated with the particular identifier.

In accordance with a second exemplary broad aspect, the invention provides For a telecommunications service subscriber having a plurality of telephone terminals associated with a plurality of alerters, said telephone terminals being communicatively coupled to a

- 4 -

telecommunications network which provides an identifier of an incoming call directed to the subscriber, a system for managing alerting of the incoming call comprising: means for providing one or more predetermined call identifiers; 5 means for associating each predetermined call identifier with one or more alerters of the plurality of alerters; means for correlating the incoming call identifier to a particular identifier of the one or more predetermined call identifiers; and means for activating the one or more 10 alerters associated with the particular identifier.

In accordance with a third broad aspect, the invention provides in a telecommunications functions management system for a telecommunications service subscriber having one or more telephone terminals 15 associated with a one or more alerters which are operable at a plurality of cadences, said one or more telephone terminals being communicatively coupled to a telecommunications network which provides an identifier of an incoming call directed to the subscriber, a method for 20 managing alerting of the incoming call comprising the steps of: providing one or more predetermined call identifiers; associating each predetermined call identifier with one cadence of the plurality of cadences; correlating the incoming call identifier to a particular identifier of the 25 one or more predetermined call identifiers; and activating the one or more alerters to operate at the one cadence associated with the particular identifier.

In accordance with a fourth broad aspect, the invention provides for a telecommunications service 30 subscriber having one or more telephone terminals associated with a one or more alerters which are operable at a plurality of cadences, said one or more telephone terminals being communicatively coupled to a telecommunications network which provides an identifier of 35 an incoming call directed to the subscriber, a system for managing alerting of the incoming call comprising: means for providing one or more predetermined call identifiers;

- 5 -

means for associating each predetermined call identifier with one cadence of the plurality of cadences; means for correlating the incoming call identifier to a particular identifier of the one or more predetermined call
5 identifiers; and means for activating the one or more alerters to operate at the one cadence associated with the particular identifier.

In accordance with a fifth exemplary broad aspect, the invention provides in a telecommunications functions
10 management system for a telecommunications service subscriber having a plurality of telephone terminals associated with a plurality of alerters, said telephone terminals being communicatively coupled to a telecommunications network, a method for managing alerting
15 of an incoming call directed to the subscriber, comprising the steps of: providing one or more predetermined call treatment options; associating each predetermined call treatment option with one or more alerters of the plurality of alerters; prompting the incoming call with the
20 predetermined call treatment options; receiving an input selection from the incoming call; correlating the input selection to a particular call treatment of the one or more predetermined call treatment options; and activating the one or more alerters associated with the particular call
25 treatment.

In accordance with a sixth exemplary broad aspect, the invention provides for a telecommunications service subscriber having a one or more telephone terminals associated with a one or more alerters which are operable
30 at a plurality of cadences, said one or more telephone terminals being communicatively coupled to a telecommunications network, a system for managing alerting of an incoming call directed to the subscriber, comprising: means for providing one or more predetermined call
35 treatment options; means for associating each predetermined call treatment option with one cadence of the plurality of cadences; means for prompting the incoming call with the

- 6 -

predetermined call treatment options; means for receiving an input selection from the incoming call; means for correlating the input selection to a particular call treatment of the one or more predetermined call treatment options; and means for activating the one or more alerters to operate at the one cadence associated with the particular call treatment.

In accordance with a seventh broad aspect, the invention provides in a telecommunications functions management system for a telecommunications service subscriber having a plurality of telephone terminals communicatively coupled to a telecommunications network, a method for managing outgoing calls originating from any of the plurality of telephone terminals, comprising the steps of: providing one or more predetermined block call identifiers; associating each predetermined block call identifier with one or more telephone terminals of the plurality of telephone terminals; correlating a directory number of one outgoing call to a particular block call identifier of the one or more predetermined block call identifiers; identifying one terminal of the plurality of telephone terminals at which the one outgoing call is being originated; and blocking, responsive to the one terminal being associated with the particular block call identifier, the one outgoing call.

In accordance with an eighth broad aspect, the invention provides in a telecommunications functions management system, comprising: a plurality of telephone terminals associated with a plurality of alerters, each telephone terminal being adapted to communicate through a subscriber loop with a telecommunications network; and a personal communications controller, coupled to the subscriber loop, for controlling dependent upon predetermined operational parameters, operation of the plurality of alerters in response to an incoming call from the telecommunications network and access of each telephone terminal to the telecommunications network in response to

- 7 -

an outgoing call originated from that terminal; a computer station at which data defining the predetermined operation parameters is generated; and means for downloading the data from the computer to the personal communications controller.

A personal communications controller (PCC), embodying the present invention, may be programmed with a personal service configuration based on which telecommunications functions in connection with multiple telephone terminals are managed. The PCC system is designed to provide enhanced service value to all of the telephone terminals throughout a residence coupled to a single telephone communication line entering the residence. The PCC may provide service differentiation on an individual basis to the telephone terminals and, furthermore, differentiated treatment may be effected on a per telephone call basis.

A wireline arrangement of the personal communications controller system effects a signaling protocol between the PCC and the telephone sets over the single twisted pair telephony wiring existing within the residence. The signaling is shared with normal analog telephone line operation by utilizing a frequency band which is above the telephony band. It is fully compatible with existing conventional analog telephone signaling and voice. The signaling operates transparently and invisibly to the telephone central office. The PCC includes suitable protection equipment to prevent leakage of its signaling outside the home into the telephone company wiring.

A wireless arrangement of the present system comprises the PCC integrated into a base station which is able to communicate and control multiple cordless handsets over radio frequency channels.

A personal computer (PC) or any other data processing workstation may be utilized to generate the service configuration which is then downloaded therefrom to the PCC. In operation, however, the PCC represents a

- 8 -

standalone "computer peripheral" that operates independently and externally to the PC for call processing. The PC brings advantageous value to the PCC system. The role of the PC is to unblock the personalization
5 bottleneck. An intuitive graphical interface on the PC enables a much broader flexibility of configuration and the standard PC keyboard is a more efficient input means for generating the service configuration, for instance, to do data entry.

10 The service configuration defines parameter in accordance with which the PCC operates. For instance, the PCC may have installed a number of predefined features and services for which the personal service configuration may include parameters that indicate to either activate or
15 deactivate specific ones as desired. For frequently used features, this approach is beneficial. Other operational parameters include associating a distinctive alert cadence with a particular calling number and, further, a particular mailbox to leave a message if the call is not answered.

20 Brief Description Of The Drawings

The invention will be better understood from the following description of a personal communications controller system together with reference to the accompanying drawings, in which:

25 Figure 1 is a block diagram that generally represents the personal communications controller system;

 Figures 2a and 2b illustrate various configurations of the personal communications controller system at a subscriber's residence;

30 Figure 3a is a block diagram illustrating internal details of a personal communications controller and satellite control module for a wireline implementation of the system;

 Figure 3b is a block diagram illustrating internal
35 details of the personal communications controller for a second wireline implementation of the system;

- 9 -

Figure 3c is a block diagram illustrating internal details of the personal communications controller for a wireless implementation of the system;

5 Figure 4 is a flow chart depicting operation of the personal communications controller to effect an automatic attendant functionality;

Figure 5 is a flow chart depicting operation of the personal communications controller to effect selective ringing functionality;

10 Figure 6 is a flow chart depicting operation of the personal communications controller to effect toll alerting functionality;

Figure 7 is a flow chart depicting operation of the personal communications controller to effect do not
15 disturb, time of day blocking and priority override functionality;

Figure 8 is a flow chart depicting operation of the personal communications controller to effect single number service functionality;

20 Figure 9 is a flow chart depicting operation of the personal communications controller to effect selective outgoing call blocking functionality; and

Figure 10 is a flow chart depicting operation of the personal communications controller to effect data call
25 protection functionality.

Detailed Description

Referring to Figure 1, depicted for illustrating the personal communications controller system, in accordance with the present invention, is a personal
30 communications controller (PCC) 10 which may be connected through a conventional communication line 12 to a central office 14 of a telephone network and to which a plurality of telephone terminals 16 may be communicatively coupled, through either wireline or wireless connectability
35 represented by line 18. The communication line 12 may be a typical analog subscriber loop having tip and ring leads, an integrated service digital network line or other

- 10 -

conventional interfaces for network access. The communicative coupling 18 may be effected by a parallel connection between the PCC 10 and all telephone terminals 16, individual connections for respective terminal 16 to the PCC 10 and, alternatively, employing a combination of parallel and independent connections. Also connectable to the PCC 10 is a personal computer workstation or PC 20.

The personal communications controller system and specifically the PCC 10 constitutes subscriber premise equipment that is logically positioned intermediate and operationally interconnects the telephone network wiring, namely line 12, entering a subscriber's residence and the telephone terminals 16 dispersed throughout the residence. It, however, should be understood that the PCC 10 is not necessarily limited to serially connecting, in physical terms, the communication line 12 to the terminals 16. This logical positioning enables the PCC 10 to act as a telecommunication hub which intercepts, blocks and processes signaling and voice between the line 12 and telephone terminals 16 to thereby effectively manage residential telecommunications functions. Examples of services and features supported for management functions in connection with incoming calls include determining which calls to answer, when to answer and where to send answered calls. Similar options and controls are supported for outgoing calls. The PCC 10 may provide differentiated call treatment, such as alerting and originating features, on a per telephone terminal basis and on a per telephone call basis, to the multiple telephone terminals 16 connected to the telephone network via the single line 12.

Various configurations for installation of the PCC 10 at the subscriber's residence are possible. Figure 2a exemplifies both wireline and wireless based installations, wherein the PCC 10 is integrated into a cordless telephone base station which is connected to an extension of the single line inhouse telephony wiring 22 which provides multiple telephone extensions in parallel. The base

- 11 -

station has the capability to establish radio wave links over which it may control and communicate with multiple remote cordless handset 24. Satellite communicator modules (SCMs) 26 are connected to other telephone extensions, and one or more conventional analog telephone sets 28 may be connected to each SCM 26. The inhouse wiring 22 is the medium over which a bi-directional signaling path between the PCC 10 and the SCMs 26 may be established. In addition to providing telecommunications management functions on a per telephone call basis, each handset 28 and SCM 26 may be addressed individually by the PCC 10 whereby enhanced services may be provisioned on a per telephone terminal basis, in accordance with a programmed service configuration for the particular handset 28 or telephone set 24 corresponding to the particular SCM 26.

The SCM 26 enables the provision of enhanced services on an individual basis to the telephone sets 28 which otherwise are connected in parallel by the inhouse wiring 22 at extensions that are remotely located in the residence distant from the PCC 10. The SCM 26 is able to intercept and even block signals between the telephone line 12 and its locally connected set 28. For example, the PCC 10 could determine that an incoming call is intended for a particular person and then would signal only the appropriate SCMs 26 to provide ringing indication; there would be no ringing indications at telephone sets attached to other SCMs. The SCMs 26 could either block, enable or even generate ringing signals for their locally connected telephone sets 28. Preferably, the ringing notification of the sets 28 connected to the SCMs 26 would be disabled and an internal SCM ringing generator or any other means for alerting of an incoming call could be used. It is envisioned that the SCM functionality may be integrated into the telephone sets 28 instead of employing two separate devices.

Another configuration of the personal communications controller system, shown in Figure 2b, is a

- 12 -

wireline based installation having the PCC 10 disposed as an entrance unit between the communications line 12 entering the residence and all the telephone extensions of the inhouse telephony wiring 22. In this particular arrangement, the PCC 10 connects to and controls in parallel conventional telephone sets 28 attached to the various telephone extensions, and supports enhanced telephony services on a per telephone call basis as the telephone sets 28 may not be individually controlled.

Alternatively, each telephone extension may be provisioned with an SCM 26 whereby the sets 28 connected thereto may then be independently controlled, and cordless handsets may also be utilized.

It should be understood that the handsets 24 and the telephone sets 28 are merely exemplary of the types of telephone terminals 16, referred to above in connection with Figure 1, that may utilized in conjunction with the PCC 10. The telephone terminals 16 are representative of conventional telephony equipment by which a person interfaces with the telephone network and, in particular, associated with each telephone terminal 16 is an incoming call alerter (e.g., ringing indicator) which is controllable by the PCC 10.

The PC 20, advantageously forming part of the personal communications controller system, is connectable to the PCC 10 and functions to provide service configuration and programming for the PCC 10. A graphical user interface facilitates use of the PC 20 for generating a service configuration which is then downloaded to the PCC 10. The PC 20 is not involved in the real time processing of telephone calls and therefore may be disconnected from the PCC 10 once it has been programmed. Communication between the PCC 10 and the PC 20, as illustrated in Figures 2a and 2b, may be effected through a dedicated link 30 such as an RS-232 bus attached to the serial port of the PC 20 or, alternatively, over the inhouse telephony wiring 22 by utilizing a modem for this purpose.

- 13 -

Turning now to Figure 3a, depicted are the functional modules within the PCC 10 and the SCM 26, which combination corresponds to the wireline implementation of the personal communications controller system of Figure 2a and is generally referenced by 31. The PCC 10 comprises a processor 32 which interacts with a ring detector 34, line interface 36, calling line identifier (CLID) 38, tone detector 40, digital telephone answering device (DTAD) 42, parallel set detector 44, SCM interface 46, computer interface 48, time of day (TOD) clock 50, service configuration 52 and a basic telephone unit 54. The SCM 26 includes a processor 56 which interacts with a PCC/terminal interface 58 and a ring generator 60 as an alerter which is operable at multiple cadences.

The line interface 36 serves to couple the PCC 10 to the tip and ring leads of the communication line 12 of the central office, and is serially connected across internal tip and ring leads 62 to the SCM interface 46. The line interface 36 includes a call termination impedance together with an on-hook/off-hook switching function controlled by the processor 32 in order to answer incoming calls. It also includes suitable line protection circuitry to prevent leakage of the PCC signaling into the telephone network wiring. The SCM interface 46 is adapted to couple the PCC 10 to the single line telephony wiring 22 to which multiple SCMs 26, via their PCC/terminal interface 58, are connected in parallel at various extensions within a subscriber's residence. The SCM interface 46 and PCC interface 58 communicate through a bi-directional signaling protocol whereby the PCC 10 is able to individually address remote SCMs 26 using telephone company regulatory compliant techniques on the single line twisted pair wiring 22. A signaling channel is effected on the line 22 outside the regular voice channel, and thus signaling is shared with normal analog telephone line operation. It is fully compatible with existing conventional analog telephone signaling and voice. The signaling operates transparently

- 14 -

and invisibly to the telephone network central office.

It should be understood that the inhouse wiring 22 and the communications line 12 may be the same subscriber loop which is connected to the central office of the telephone network and therefore, as shown in Figure 2a, the PCC 10 can be connected in parallel with the other extension telephone sets 28 within the subscriber's residence. Alternatively, as shown in Figure 2b, the PCC 10 may provide a circuit connection between line 12 from the central office and the inhouse telephony wiring 22.

Turning back to Figure 3a, the PCC/terminal interface 58 of the SCM 26 is also adapted for coupling the SCM to a telephone terminal and includes a switching function operated by its processors 56 in order to connect or disconnect the terminal from wiring 22. The ring generator 60 is controlled by the processor 56 in accordance with control commands received from the PCC 10, to produce distinctive ringing associated with the telephone terminal.

Within the PCC 10, the ring detector 34 is connected across the tip and ring leads of the communication line 12 for detecting incoming ring signals from the central office and reporting same to the processor 32 which may then take action in any of a number of ways, in accordance with the service configuration 52. The CLID 38 provides, in a CLASS environment, reception and display of calling details as well as storage of details from previous incoming calls, up to a certain limit. The integrated DTAD 42 functions include voice storage and synthesis for greetings and prompts, DTMF digit recognition, multiple voice message mailboxes and speed calling directories. The tone detector 40 detects various tones including dial tone, ringback tone, busy tone and the like, the reception of each being identified to the processor 32. The parallel set detector 44 functions to recognize whether or not telephone terminals at other extensions are off-hook (i.e., in use) and provides a

- 15 -

output signal indicative of such to the processor 32. The computer interface 48 may be a serial port and/or integrated modem for communication with the PC 20. The TOD clock 50 is utilized by the processor 32 in implementing any time related services and features of the personal communications controller system.

The basic telephone unit 54 consists of conventional telephone set equipment, such as, a DTMF keypad and user configurable "feature" keys for functions like dialing frequently called numbers, a handset, a LCD display and an optional handsfree unit. The telephone unit 54 enables the PCC 10 be utilized as an addition extension telephone set.

The service configuration 52 constitutes configuration data which is downloaded via the computer interface 48 from the PC 20 and which controls operation of the processor 32. The configuration 52 defines operational parameters for the PCC 10 and includes address information in respect of each SCM 26 with which the PCC 10 communicates, directory information, feature activation and deactivation indications as well as further operational data used by active features, if appropriate.

Figure 3b depicts a second embodiment 70 of the functional structure of the PCC 10 for the wireline implementation corresponding to Figure 2b. This second embodiment 70 is substantially similar to the first embodiment 31 of the PCC system in Figure 3a, except the PCC 10 in Figure 3b now includes a ring generator 72 and a terminal interface 73 to which the multiple telephone terminals are connected in parallel over the inhouse wiring 22. Figure 3c depicts a wireless based embodiment 74 of the PCC 10 that includes a transceiver radio 76 and antenna 78 in combination, by which the PCC 10 interacts with and controls an otherwise convention cordless handset 24 as shown in Figure 2a, for example, to ring when an appropriate incoming call is received by the PCC.

- 16 -

The following describes exemplary services and features supported by the personal communications controller system, as illustrated in Figure 1. These services span three functional areas: incoming call termination and signaling, call origination, and call integrity.

CALL TERMINATION AND SIGNALING

Under the call termination and signaling functional area, services and features include an automatic attendant, selective and distinctive ringing, toll alert, a do not disturb (DND) feature, time of day (TOD) blocking, priority override, call detail recording, and single number service.

Automatic Attendant

Figure 4 exemplifies a process for effecting by the PCC 10 the automatic attendant function. When the PCC 10 detects a ringing signal on the line 12, responsive thereto the PCC 10 functions as an automatic attendant to determine a recipient for whom an incoming call is destined and then properly alert the intended recipient. It is noted that a recipient may be an individual, such as, each member of a household or a group of individuals, such as, the adults and the kids within the household. There are two techniques that may be used for destination determination:

- 1) If the calling number (CLID) is provided by the central office 14 of the telephone network, the PCC 10 will utilize the CLID information and look for a match within one or more internal lists of directory numbers which form part of the configuration data. For instance, each recipient (e.g., adults and kids or individuals within the household) may have a respective directory list containing directory numbers corresponding to persons from whom calls are frequently received. Each directory list also contains information about the type of alerting for the particular recipient attached to that list.

- 17 -

2) If the CLID information is not provided by the central office or a match is not found in the directory lists within the configuration data, then the PCC 10 will automatically answer the call and present a routing or call treatment options menu to the caller. For example, the PCC 10 may voice prompt for a touch tone digit - "For adults press 1, for kids press 2" - and based on the received DTMF digit, the appropriate recipient for routing of the call is determined. For each routing option, there is a specified within the configuration data the type of alerting.

Once the automatic attendant has determined the destination of the call, it will properly alert the household members as described in the selective ringing feature below.

Selective Ringing

The automatic attendant service implemented by the PCC 10 has determined who an incoming call is for. Selective ringing then determines how to ring or alert that intended recipient. Figure 5 exemplifies a process for effecting selective ringing.

The alerting by the PCC 10 can be configured to be via distinctive ringing and/or via selective ones of the telephone terminals 16. The particular telephone terminal or multiple terminals 16 and the particular ringing cadence are indicated in the configuration data for each recipient and the appropriate selective ringing is based on the determined destination for the incoming call.

This service is implemented by the capability of the PCC 10 to answer a call and then, for example in relation to the PCC embodiment 31 in Figure 3a, use the internal ringing generator 60 within the SCM 26 to re-ring individual extension telephone sets. The PCC 10 transmits over the inhouse telephone wiring an appropriate control signal in which the specific SCMs 26 that generate rings are identified together with the specific ring pattern. For the wireless embodiment of the PCC 74 in Figure 3c, a similar control signal may be transmitted over a radio wave

- 18 -

link, to activate ring generators of the specific handsets 24 in accordance with the specific ring pattern.

A typical application would be to configure the kitchen and family room telephones to always ring on all
5 calls but with a distinctive ringing cadence for different recipients. Bedroom and office phones can be configured to only ring for the actual "occupants" of those rooms.

Toll Alert

Figure 6 exemplifies a process for toll alerting
10 effected by the PCC 10. Toll alerting is based on the CLID for an incoming call in conjunction with a user defined toll DN list. The PCC 10 compares the area code or numbering plan area (NPA) of a received CLID with the user's local NPA which forms part of the configuration data
15 and recognizes the incoming call as being a toll call when the two NPAs do not match. Furthermore, an incoming call CLID whose NPA matches the local NPA may still be recognized as a toll call if the incoming DN matches an entry in the pre-defined toll DN list. Recognized toll
20 calls may be identified as such by a distinctive ring cadence (e.g., two shorter rings) which is defined in the configuration data in association with the local NPA. In addition, at the user's discretion, these toll calls may be routed to a specific telephone terminal or terminals 16
25 which are specified in the configuration data.

Figure 7 exemplifies a process for effecting by the PCC 10 a do not disturb (DND), time of day (TOD) blocking, and priority override functions described in the following.

30

Do Not Disturb

The "do not disturb" (DND) feature is beneficial for when users desire a "quiet time", for instance so that they can simply relax, read a paper, or eat a meal without being disturbed by incoming calls. The DND feature may be
35 activated on an as needed basis, either for a predetermined interval of time as specified in the configuration data or

- 19 -

indefinitely, by depressing a key on the PCC 10 or any extension telephone terminal 16. When this feature is active, incoming calls are routed immediately to a mailbox where the caller is invited to record a message. Each
5 recipient directory list may identify with one of the multiple mailboxes provided by the DTAD 24, with selection of the mailbox being dependent upon correlating the CLID of the incoming call to a particular recipient. Also, each call treatment option provided by the automatic attendant
10 may be associated with a particular mailbox, to which the caller is routed when that option is selected and the DND feature is active.

Time of Day (TOD) Ringing and Blocking

At the user's discretion, calls will not be
15 allowed by the PCC 10 to ring the telephone terminals 16 at specific intervals in the day, and instead the caller may be presented with a specific greeting. As an example, calls received after 10 p.m. could be routed to a greeting such as "The Smith family does not take calls after 10 p.m.
20 Please call again tomorrow". Alternatively, the PCC 10 could invite the caller to leave a message in a general mailbox, or the mailbox of the intended recipient to which the incoming CLID corresponds or the mailbox associated with the selected call treatment option. Users may provide
25 as part of the configuration data a time of day window (i.e., a start time and finish time) and at receipt of an incoming call, the PCC 10 retrieves current time from its internal TOD clock to determine whether that call should be blocked or enabled.

Priority Override

30 Priority override provides a means for selected callers to "break through" the call screening features effected by the PCC 10 and ring any or all of the telephone terminals 16 in the residence. A predetermined override
35 password forms part of the configuration data and when a caller enters the password via the touch-tone (DTMF)

- 20 -

keypad, the PCC 10 then rings desired terminals, with or without a distinctive ring. The desired one or more terminals may be specified in connection with the override password in the configuration data or, alternatively, all
5 the terminals 16 may be rung.

Incoming Call Detail Recording

Details of incoming calls are recorded and stored in memory of the PCC 10. Subsequently, this information may be uploaded to the PC 20 where it can be used to build
10 or amend personal contact lists, such as, Christmas card lists, business contacts, community & school service groups and the like.

Single Number Service

Figure 8 exemplifies a process for effecting
15 single number service by the PCC. Incoming calls can be re-routed by the PCC 10 to another directory number, such as, that of a cellular service. The DN for rewriting may simply be a single predetermined number forming part of the configuration data or there may multiple rewriting DNS with
20 selection of an appropriate one being based on any of time of day, incoming caller CLID information, priority override or by a menu selection from the auto attendant. This feature requires either two lines or ISDN service to the central office 14 of the telephone network.

CALL ORIGINATION

Services and features under this functional area include selective blocking of outgoing calls, call detail recording and selective barge in, for which operation of the PCC 10 is described below.

Selective Outgoing Call Blocking

Figure 9 exemplifies a process for effecting selective blocking of outgoing calls. The PCC 10 may use the combination of dialed DTMF digits and originating extension telephone terminal identification numbers
35 received from the terminal at which an outgoing call is being originated, to determine whether or not to allow the

- 21 -

outgoing call to proceed. For example, outgoing toll calls could be blocked when they originate from a terminal 16 located in child's bedroom. The configuration data contains specific directory numbers and directory strings with wild card characters, such as 900*, which are associated with terminal identifiers corresponding to telephone terminals 16 from which originating calls are to be blocked by the PCC 10.

Alternatively, all outgoing calls could be blocked from a particular terminal 16, for example, in the child's room between 11:00 PM and 7:00 AM. In this case, the time window for blocking the outgoing call would be specified together with the identification number of that terminal 16 in the configuration data.

A more extensive service is to limit a child to a predetermined number "XX" hours a month of outgoing toll calls. All subsequent toll calls would be blocked. This may be effected by providing in the configuration data a value for the maximum number of hours to be allowed together with an identifier of the telephone terminal the child should use when making the toll calls. The PCC 10 maintains a count of time for toll calls from that terminal and once the maximum is depleted, the PCC 10 inhibits further toll calls. As described above in connection with toll alerting for incoming calls, recognition of outgoing calls as toll calls may be done by comparing the NPA of the dialed DN to the local NPA (i.e., toll if different) or by comparing the dialed DN to a pre-defined list of toll numbers. Another service is for the PCC 10 to accumulate total calling time to a particular DN, for example, an online service; once a monthly limit is exceeded then all subsequent calls to the online service are blocked. The particular number and time limit are specified in the configuration data.

Call Detail Recording For Outgoing Calls

Details of outgoing calls are recorded and stored on the PCC 10 from which it subsequently may be uploaded to

- 22 -

the PC 20. This information may be used, for example, to track activities and telecommunications expenses associated with personal work for non-profit organizations and community or school service groups. Such activity can be recorded for each member of the family and for each telephone terminal 16 in the residence.

Selective Barge In

The PCC 10 can selectively prevent other extensions from inadvertently "barging into" an existing call. It could be as simple as preventing all other extensions from entering any telephone call that originates in the office/study. For instance, the SCMs 26 of the embodiment for the PCC system in Figure 3a could disconnect, under the command of the PCC 10, their respective telephone terminals from the inhouse telephony wiring.

CALL INTEGRITY AND ADMINISTRATION

Examples of services and features provided in this functional area include data call protection, call timing alerts, and file and data transfer.

Data Call Protection

This feature prevents other extensions from entering a pre-existing FAX or data call, and potentially interrupting the modem tones. Figure 10 exemplifies a process for effecting data call protection by the PCC 10.

For the embodiment 31 in Figure 3a, when the PCC 10 detects a call from a SCM 26 connected to a FAX machine or modem then it knows a data call is in progress. Alternatively, when a user sets up a data call on his/her residential line, he or she may elect to disable network features such as Call Waiting, by dialing a standard code at the start of the call (i.e.: *67). When the PCC 10 detects such a signal, all (or selected) extensions in the home may be disabled. The PCC 10 controls the appropriate SCMs 26 to open an internal switch whereby its attached telephone terminal is disconnected from the inhouse

- 23 -

telephony wiring, so the data call cannot be inadvertently knocked down by an extension going "off - hook".

Call Timing Alerts

5 Calls (either incoming or outgoing) are timed by the PCC 10 for purposes of call detail recording. The user can pre-record voice messages that will be played over the conversation at prescribed intervals. For instance, on outgoing toll calls, announcements such as "Ten minutes", "Twenty minutes" could be read out at the appropriate
10 intervals.

File and Data transfer

Files and data may be transferred to and from the PCC 10 and the PC 20. Data such as speed call lists, caller lists and long distance call summaries, and
15 configuration files such as Time of Day ringing is created or modified at either the PCC 10 or the PC 20. Such data can be loaded either to the PC 20 for storage and further manipulation or down to the PCC 10 for implementation. Transfer and synchronization activity is automatic, running
20 at off-peak intervals, and interrupted immediately if an incoming or outgoing call is initiated.

Those skilled in the art will recognize that various modifications and changes could be made to the invention without departing from the spirit and scope
25 thereof. It should therefore be understood that the claims are not to be considered as being limited to the precise embodiments of the personal communications controller system set forth above, in the absence of specific limitations directed to each embodiment.

- 24 -

WE CLAIM:

1. In a telecommunications functions management
5 system for a telecommunications service subscriber having a
plurality of telephone terminals (16) associated with a
plurality of alerters, said telephone terminals being
communicatively coupled to a telecommunications network
10 (14) which provides an identifier of an incoming call
directed to the subscriber, a method for managing alerting
of the incoming call comprising the steps of:

providing one or more predetermined call
identifiers;

associating each predetermined call identifier
15 with one or more alerters of the plurality of alerters;
correlating the incoming call identifier to a
particular identifier of the one or more predetermined call
identifiers; and

activating the one or more alerters associated
20 with the particular identifier.

2. A method as claimed in claim 1, wherein the
plurality of alerters are operable at a plurality of
25 cadences; further comprising associating each predetermined
call identifier with one cadence of the plurality of
cadences; and wherein the step of activating the one or
more alerters includes controlling the one or more alerters
to operate at the one cadence associated with the
30 particular identifier.

3. A method as claimed in claim 1 or 2, comprising
the steps of:
35 providing one or more predetermined call treatment
options;

- 25 -

associating each predetermined call treatment option with one or more of the plurality of alerters;

prompting, when the incoming call identifier is not available or not correlatable to any of the
5 predetermined call identifiers, the incoming call with the predetermined call treatment options;

correlating, responsive to receiving an input selection from the incoming call, the input selection to a particular call treatment of the one or more predetermined
10 call treatment options; and

activating the one or more alerters associated with the particular call treatment.

15 4. A method as claimed in claim 3, comprising associating each predetermined call treatment option with one cadence of the plurality of cadences; and the step of activating the one or more alerters includes controlling the one or more alerters to operate at the one cadence
20 associated with the particular call treatment.

5. A method as claimed in claim 1 or 2, comprising the steps of:
25 measuring time;
providing a call blocking time interval; and
responsive to the measured time being within the call blocking time interval, not activating any of the plurality of alerters and routing the incoming call to a
30 mailbox whereby a voice message is recordable.

6. A method as claimed in claim 5, wherein the mailbox includes a plurality of mailboxes; further
35 comprising associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox

- 26 -

includes recording the voice message in the one mailbox associated with the particular identifier.

5 7. A method as claimed in claim 3 or 4, comprising the steps of:

 measuring time;

 providing a call blocking time interval; and

 responsive to the measured time being within the
10 call blocking time interval, not activating any of the plurality of alerters and routing the incoming call to a mailbox whereby a voice message is recordable.

15 8. A method as claimed in claim 7, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox
20 includes recording the voice message in the one mailbox associated with the particular identifier.

 9. A method as claimed in claim 8, comprising
25 associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox associated with the particular call treatment.

30

 10. A method as claimed in claim 7, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call treatment
35 option with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one

- 27 -

mailbox associated with the particular call treatment.

11. A method as claimed in claim 5, 6, 7, 8, 9 or 10,
5 comprising the steps of:
 providing, by the subscriber, an indication
 representing do not disturb; and
 responsive to the do not disturb indication, not
 activating any of the plurality of alerters and routing the
10 incoming call to the mailbox.

12. A method as claimed in claim 1 or 2, comprising
the steps of:
15 providing, by the subscriber, an indication
 representing do not disturb; and
 responsive to the do not disturb indication, not
 activating any of the plurality of alerters and routing the
 incoming call to a mailbox whereby a voice message is
20 recordable.

13. A method as claimed in claim 12, wherein the
mailbox includes a plurality of mailboxes; further
25 comprising associating each predetermined call identifier
with one mailbox of the plurality of mailboxes; and wherein
the step of routing the incoming call to the mailbox
includes recording the voice message in the one mailbox
associated with the particular identifier.

30

14. A method as claimed in claim 3 or 4, comprising
the steps of:
 providing, by the subscriber, an indication
35 representing do not disturb; and
 responsive to the do not disturb indication, not
 activating any of the plurality of alerters and routing the

- 28 -

incoming call to a mailbox whereby a voice message is recordable.

5 15. A method as claimed in claim 14, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox
10 includes recording the voice message in the one mailbox associated with the particular identifier.

16. A method as claimed in claim 15, comprising
15 associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox associated with the particular call treatment.

20

17. A method as claimed in claim 14, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call treatment
25 option with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox associated with the particular call treatment.

30

18. For a telecommunications service subscriber having a plurality of telephone terminals (16) associated with a plurality of alerters, said telephone terminals being communicatively coupled to a telecommunications network
35 (14) which provides an identifier of an incoming call directed to the subscriber, a system for managing alerting of the incoming call comprising:

- 29 -

means for providing one or more predetermined call identifiers;

means for associating each predetermined call identifier with one or more alerters of the plurality of alerters;

means for correlating the incoming call identifier to a particular identifier of the one or more predetermined call identifiers; and

means for activating the one or more alerters associated with the particular identifier.

19. A system as claimed in claim 18, wherein the plurality of alerters are operable at a plurality of cadences; further comprising means for associating each predetermined call identifier with one cadence of the plurality of cadences; and wherein the means for activating the one or more alerters includes means for controlling the one or more alerters to operate at the one cadence associated with the particular identifier.

20. A system as claimed in claim 18 or 19, comprising: means for providing one or more predetermined call treatment options;

means for associating each predetermined call treatment option with one or more of the plurality of alerters;

means for prompting, when the incoming call identifier is not available or not correlatable to any of the predetermined call identifiers, the incoming call with the predetermined call treatment options;

means for correlating, responsive to receiving an input selection from the incoming call, the input selection to a particular call treatment of the one or more predetermined call treatment options; and

- 30 -

means for activating the one or more alerters associated with the particular call treatment.

5 21. A system as claimed in claim 20, comprising means for associating each predetermined call treatment option with one cadence of the plurality of cadences; and wherein the means for activating the one or more alerters includes means for controlling the one or more alerters to operate
10 at the one cadence associated with the particular call treatment.

22. A system as claimed in claim 18 or 19, comprising:
15 means for measuring time;
 means for providing a call blocking time interval;
 and
 means, responsive to the measured time being within the call blocking time interval, for not activating
20 any of the plurality of alerters and for routing the incoming call to a mailbox whereby a voice message is recordable.

25 23. A system as claimed in claim 22, wherein the mailbox includes a plurality of mailboxes; further comprising means for associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the
30 mailbox includes means for recording the voice message in the one mailbox associated with the particular identifier.

24. A system as claimed in claim 20 or 21, comprising:
35 means for measuring time;
 means for providing a call blocking time interval;
 and

- 31 -

means, responsive to the measured time being within the call blocking time interval, for not activating any of the plurality of alerters and for routing the incoming call to a mailbox whereby a voice message is
5 recordable.

25. A system as claimed in claim 24, wherein the mailbox includes a plurality of mailboxes; further
10 comprising means for associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular identifier.
15

26. A system as claimed in claim 25, comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein
20 the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

25 27. A system as claimed in claim 24, wherein the mailbox includes a plurality of mailboxes; further comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming
30 call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

35 28. A system as claimed in claim 22, 23, 24, 25, 26 or 27, comprising:

- 32 -

means for providing, by the subscriber, an indication representing do not disturb; and

means, responsive to the do not disturb indication, for not activating any of the plurality of alerters and for routing the incoming call to the mailbox.

29. A system as claimed in claim 18 or 19, comprising:
means for providing, by the subscriber, an indication representing do not disturb;
means, responsive to the do not disturb indication, for not activating any of the plurality of alerters and for routing the incoming call to a mailbox whereby a voice message is recordable.

30. A system as claimed in claim 29, wherein the mailbox includes a plurality of mailboxes; further comprising means for associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular identifier.

31. A system as claimed in claim 20 or 21, comprising:
means for providing, by the subscriber, an indication representing do not disturb;
means, responsive to the do not disturb indication, for not activating any of the plurality of alerters and for routing the incoming call to a mailbox whereby a voice message is recordable.

32. A system as claimed in claim 31, wherein the mailbox includes a plurality of mailboxes; further comprising means for associating each predetermined call

- 33 -

identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular identifier.

5

33. A system as claimed in claim 32, comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein
10 the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

15 34. A system as claimed in claim 31, wherein the mailbox includes a plurality of mailboxes; further comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming
20 call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

25 35. A method as claimed in claim 1, wherein the plurality telephone terminals include cordless handsets (24); the telecommunications functions management system includes a personal communications controller (10) which is coupled to the telephone network by a communications line
30 (12, 22) of the telecommunications service subscriber; the incoming call identifier is received through the communications line by the personal communications controller at which the steps of providing, associating, correlating and activating are effected; and the step of
35 activating the one or more alerters associated with the particular identifier includes signaling, by the personal communications controller, over a wireless link the

- 34 -

cordless handsets associated with the one or more alerters.

36. A method as claimed in claim 35, wherein the
5 plurality of telephone terminals include telephone sets
(28) having respective satellite controllers (26) which are
connected in parallel to the communications line and each
of which controls operation of the alerter associated with
the corresponding telephone set; and the step of activating
10 the one or more alerters associated with the particular
identifier includes signaling, by the personal
communications controller, the satellite controllers over
the communications line at a channel above a voice channel,
thereby addressing the satellite controllers associated
15 with the one or more alerters.

37. A method as claimed in claim 1, wherein the
telecommunications functions management system includes a
20 personal communications controller (10) which is coupled to
the telephone network by a communications line (12, 22) of
the telecommunications service subscriber; the plurality of
telephone terminals include telephone sets (28) having
respective satellite controllers (26) which are connected
25 in parallel to the communications line and each of which
controls operation of the alerter associated with the
corresponding telephone set; the incoming call identifier
is received through the communications line by the personal
communications controller at which the steps of providing,
30 associating, correlating and activating are effected; and
the step of activating the one or more alerters associated
with the particular identifier includes signaling, by the
personal communications controller, the satellite
controllers over the communications line at a channel above
35 a voice channel, thereby addressing the satellite
controllers associated with the one or more alerters.

- 35 -

38. In a telecommunications functions management system for a telecommunications service subscriber having one or more telephone terminals (16) associated with a one or more alerters which are operable at a plurality of cadences, said one or more telephone terminals being communicatively coupled to a telecommunications network (14) which provides an identifier of an incoming call directed to the subscriber, a method for managing alerting of the incoming call comprising the steps of:

- providing one or more predetermined call identifiers;
- associating each predetermined call identifier with one cadence of the plurality of cadences;
- correlating the incoming call identifier to a particular identifier of the one or more predetermined call identifiers; and
- activating the one or more alerters to operate at the one cadence associated with the particular identifier.

39. A method as claimed in claim 38, comprising the steps of:

- providing one or more predetermined call treatment options;
- associating each predetermined call treatment option with at least one alerter of the one or more alerters;
- prompting, when the incoming call identifier is not available or not correlatable to any of the predetermined call identifiers, the incoming call with the predetermined call treatment options;
- correlating, responsive to receiving an input selection from the incoming call, the input selection to a particular call treatment of the one or more predetermined call treatment options; and

- 36 -

activating the at least one alerter associated with the particular call treatment.

5 40. A method as claimed in claim 39, comprising associating each predetermined call treatment option with one cadence of the plurality of cadences; and the step of activating the at least one alerter includes controlling the at least one alerter to operate at the one cadence
10 associated with the particular call treatment.

41. A method as claimed in claim 38, comprising the steps of:
15 providing one or more predetermined call treatment options;
 associating each predetermined call treatment option with one cadence of the plurality of cadences;
 prompting, when the incoming call identifier is
20 not available or not correlatable to any of the predetermined call identifiers, the incoming call with the predetermined call treatment options;
 correlating, responsive to receiving an input selection from the incoming call, the input selection to a
25 particular call treatment of the one or more predetermined call treatment options; and
 activating the one or more alerters to operate at the one cadence associated with the particular call treatment.

30

42. A method as claimed in claim 38, comprising the steps of:
 measuring time;
35 providing a call blocking time interval; and
 responsive to the measured time being within the call blocking time interval, not activating any of the one

- 37 -

or more alerters and routing the incoming call to a mailbox whereby a voice message is recordable.

5 43. A method as claimed in claim 42, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox
10 includes recording the voice message in the one mailbox associated with the particular identifier.

44. A method as claimed in claim 39, 40 or 41,
15 comprising the steps of:
 measuring time;
 providing a call blocking time interval; and
 responsive to the measured time being within the call blocking time interval, not activating any of the one
20 or more alerters and routing the incoming call to a mailbox whereby a voice message is recordable.

45. A method as claimed in claim 44, wherein the mailbox includes a plurality of mailboxes; further
25 comprising associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox
30 associated with the particular identifier.

46. A method as claimed in claim 45, comprising associating each predetermined call treatment option with
35 one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox associated

- 38 -

with the particular call treatment.

47. A method as claimed in claim 44, wherein the
5 mailbox includes a plurality of mailboxes; further
comprising associating each predetermined call treatment
option with one mailbox of the plurality of mailboxes; and
wherein the step of routing the incoming call to the
mailbox includes recording the voice message in the one
10 mailbox associated with the particular call treatment.

48. A method as claimed in claim 42, 43, 44, 45, 46 or
47, comprising the steps of:
15 providing, by the subscriber, an indication
representing do not disturb; and
responsive to the do not disturb indication, not
activating any of the one or more alerters and routing the
incoming call to the mailbox.

20

49. A method as claimed in claim 38, comprising the
steps of:
providing, by the subscriber, an indication
25 representing do not disturb; and
responsive to the do not disturb indication, not
activating any of the one or more alerters and routing the
incoming call to a mailbox whereby a voice message is
recordable.

30

50. A method as claimed in claim 49, wherein the
mailbox includes a plurality of mailboxes; further
comprising associating each predetermined call identifier
35 with one mailbox of the plurality of mailboxes; and wherein
the step of routing the incoming call to the mailbox
includes recording the voice message in the one mailbox

- 39 -

associated with the particular identifier.

51. A method as claimed in claim 39, 40 or 41,
5 comprising the steps of:
providing, by the subscriber, an indication
representing do not disturb; and
responsive to the do not disturb indication, not
activating any of the one or more alerters and routing the
10 incoming call to a mailbox whereby a voice message is
recordable.

52. A method as claimed in claim 51, wherein the
15 mailbox includes a plurality of mailboxes; further
comprising associating each predetermined call identifier
with one mailbox of the plurality of mailboxes; and wherein
the step of routing the incoming call to the mailbox
includes recording the voice message in the one mailbox
20 associated with the particular identifier.

53. A method as claimed in claim 52, comprising
associating each predetermined call treatment option with
25 one mailbox of the plurality of mailboxes; and wherein the
step of routing the incoming call to the mailbox includes
recording the voice message in the one mailbox associated
with the particular call treatment.

30

54. A method as claimed in claim 51, wherein the
mailbox includes a plurality of mailboxes; further
comprising associating each predetermined call treatment
option with one mailbox of the plurality of mailboxes; and
35 wherein the step of routing the incoming call to the
mailbox includes recording the voice message in the one
mailbox associated with the particular call treatment.

- 40 -

55. For a telecommunications service subscriber having one or more telephone terminals (16) associated with a one or more alerters which are operable at a plurality of cadences, said one or more telephone terminals being communicatively coupled to a telecommunications network (14) which provides an identifier of an incoming call directed to the subscriber, a system for managing alerting of the incoming call comprising:

means for providing one or more predetermined call identifiers;

means for associating each predetermined call identifier with one cadence of the plurality of cadences;

means for correlating the incoming call identifier to a particular identifier of the one or more predetermined call identifiers; and

means for activating the one or more alerters to operate at the one cadence associated with the particular identifier.

56. A system as claimed in claim 55, comprising:

means for providing one or more predetermined call treatment options;

means for associating each predetermined call treatment option with at least one alerter of the one or more alerters;

means for prompting, when the incoming call identifier is not available or not correlatable to any of the predetermined call identifiers, the incoming call with the predetermined call treatment options;

means for correlating, responsive to receiving an input selection from the incoming call, the input selection to a particular call treatment of the one or more predetermined call treatment options; and

- 41 -

means for activating the at least one alerter associated with the particular call treatment.

5 57. A system as claimed in claim 56, comprising means for associating each predetermined call treatment option with one cadence of the plurality of cadences; and the means for activating the at least one alerter includes means for controlling the at least one alerter to operate
10 at the one cadence associated with the particular call treatment.

58. A system as claimed in claim 55, comprising:
15 means for providing one or more predetermined call treatment options;
means for associating each predetermined call treatment option with one cadence of the plurality of cadences;
20 means for prompting, when the incoming call identifier is not available or not correlatable to any of the predetermined call identifiers, the incoming call with the predetermined call treatment options;
means for correlating, responsive to receiving an
25 input selection from the incoming call, the input selection to a particular call treatment of the one or more predetermined call treatment options; and
means for activating the one or more alerters to operate at the one cadence associated with the particular
30 call treatment.

59. A system as claimed in claim 55, comprising:
means for measuring time;
35 means for providing a call blocking time interval;
and

- 42 -

means, responsive to the measured time being within the call blocking time interval, for not activating any of the one or more alerters and for routing the incoming call to a mailbox whereby a voice message is
5 recordable.

60. A system as claimed in claim 59, wherein the mailbox includes a plurality of mailboxes; further
10 comprising means for associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular identifier.
15

61. A system as claimed in claim 56, 57 or 58, comprising:

means for measuring time;
20 means for providing a call blocking time interval;
and
means, responsive to the measured time being within the call blocking time interval, for not activating any of the one or more alerters and for routing the
25 incoming call to a mailbox whereby a voice message is recordable.

62. A system as claimed in claim 61, wherein the mailbox includes a plurality of mailboxes; further
30 comprising means for associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in
35 the one mailbox associated with the particular identifier.

- 43 -

63. A system as claimed in claim 62, comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein
5 the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

10 64. A system as claimed in claim 61, wherein the mailbox includes a plurality of mailboxes; further comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming
15 call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

20 65. A system as claimed in claim 59, 60, 61, 62, 63 or 64, comprising:
means for providing, by the subscriber, an indication representing do not disturb; and
means, responsive to the do not disturb
25 indication, for not activating any of the one or more alerters and for routing the incoming call to the mailbox.

66. A system as claimed in claim 55, comprising:
30 means for measuring time;
means for providing a call blocking time interval;
and
means, responsive to the measured time being within the call blocking time interval, for not activating
35 any of the one or more alerters and for routing the incoming call to a mailbox whereby a voice message is recordable.

67. A system as claimed in claim 66, wherein the mailbox includes a plurality of mailboxes; further
5 comprising means for associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular identifier.

10

68. A system as claimed in claim 56, 57 or 58, comprising:

means for providing, by the subscriber, an
15 indication representing do not disturb; and
means, responsive to the measured time being within the call blocking time interval, for not activating any of the one or more alerters and for routing the incoming call to a mailbox whereby a voice message is
20 recordable.

69. A system as claimed in claim 68, wherein the mailbox includes a plurality of mailboxes; further
25 comprising means for associating each predetermined call identifier with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular identifier.

30

70. A system as claimed in claim 69, comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein
35 the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

- 45 -

71. A system as claimed in claim 68, wherein the mailbox includes a plurality of mailboxes; further
5 comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular
10 call treatment.

72. A method as claimed in claim 55, wherein the one or more telephone terminals include cordless handsets (24);
15 the telecommunications functions management system includes a personal communications controller (10) which is coupled to the telephone network by a communications line (12, 22) of the telecommunications service subscriber; the incoming call identifier is received through the communications line
20 by the personal communications controller at which the steps of providing, associating, correlating and activating are effected; and the step of activating the one or more alerters to operate at the one cadence associated with the particular identifier includes signaling, by the personal
25 communications controller, over a wireless link the cordless handsets associated with the one or more alerters.

73. A method as claimed in claim 72, wherein the one
30 or more telephone terminals include telephone sets (28) having respective satellite controllers (26) which are connected in parallel to the communications line and each of which controls operation of the alerter associated with the corresponding telephone set; and the step of activating
35 the one or more alerters to operate at the one cadence associated with the particular identifier includes signaling, by the personal communications controller, the

- 46 -

satellite controllers over the communications line at a channel above a voice channel, thereby addressing the satellite controllers associated with the one or more alerters.

5

74. A method as claimed in claim 55, wherein the telecommunications functions management system includes a personal communications controller (10) which is coupled to the telephone network by a communications line (12, 22) of the telecommunications service subscriber; the one or more telephone terminals include telephone sets (28) having respective satellite controllers (26) which are connected in parallel to the communications line and each of which controls operation of the alerter associated with the corresponding telephone set; the incoming call identifier is received through the communications line by the personal communications controller at which the steps of providing, associating, correlating and activating are effected; and the step of activating the one or more alerters to operate at the one cadence associated with the particular identifier includes signaling, by the personal communications controller, the satellite controllers over the communications line at a channel above a voice channel, thereby addressing the satellite controllers associated with the one or more alerters.

75. In a telecommunications functions management system for a telecommunications service subscriber having a plurality of telephone terminals (16) associated with a plurality of alerters, said telephone terminals being communicatively coupled to a telecommunications network (14), a method for managing alerting of an incoming call directed to the subscriber, comprising the steps of:

providing one or more predetermined call treatment options;

- 47 -

associating each predetermined call treatment option with one or more alerters of the plurality of alerters;

5 prompting the incoming call with the predetermined call treatment options;

 receiving an input selection from the incoming call;

 correlating the input selection to a particular call treatment of the one or more predetermined call treatment options; and

10 activating the one or more alerters associated with the particular call treatment.

15 76. A method as claimed in claim 75, wherein the plurality of alerters are operable at a plurality of cadences; further comprising associating each predetermined call treatment option with one cadence of the plurality of cadences; and the step of activating the one or more

20 alerters includes controlling the one or more alerters to operate at the one cadence associated with the particular call treatment.

25 77. A method as claimed in claim 75 or 76, comprising the steps of:

 measuring time;

 providing a call blocking time interval; and

 responsive to the measured time being within the

30 call blocking time interval, not activating any of the plurality of alerters and routing the incoming call to a mailbox whereby a voice message is recordable.

35 78. A method as claimed in claim 77, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call treatment

- 48 -

option with one mailbox of the plurality of mailboxes; and wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox associated with the particular call treatment.

5

79. A method as claimed in claim 77 or 78, comprising the steps of:

providing, by the subscriber, an indication
10 representing do not disturb; and
responsive to the do not disturb indication, not activating any of the plurality of alerters and routing the incoming call to the mailbox.

15

80. A method as claimed in claim 75 or 76, comprising the steps of:

providing, by the subscriber, an indication
representing do not disturb; and
20 responsive to the do not disturb indication, not activating any of the plurality of alerters and routing the incoming call to a mailbox whereby a voice message is recordable.

25

81. A method as claimed in claim 80, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and
30 wherein the step of routing the incoming call to the mailbox include recording the voice message in the one mailbox associated with the particular call treatment.

35 82. For a telecommunications service subscriber having a plurality of telephone terminals (16) associated with a plurality of alerters, said telephone terminals being

- 49 -

communicatively coupled to a telecommunications network (14), a system for managing alerting of an incoming call directed to the subscriber, comprising:

- 5 means for providing one or more predetermined call treatment options;
- means for associating each predetermined call treatment option with one or more alerters of the plurality of alerters;
- 10 means for prompting the incoming call with the predetermined call treatment options;
- means for receiving an input selection from the incoming call;
- means for correlating the input selection to a particular call treatment of the one or more predetermined
- 15 call treatment options; and
- means for activating the one or more alerters associated with the particular call treatment.

- 20 83. A system as claimed in claim 82, wherein the plurality of alerters are operable at a plurality of cadences; further comprising means for associating each predetermined call treatment option with one cadence of the plurality of cadences; and the means for activating the one
- 25 or more alerters includes means for controlling the one or more alerters to operate at the one cadence associated with the particular call treatment.

- 30 84. A system as claimed in claim 83, comprising:
- means for measuring time;
 - means for providing a call blocking time interval;
 - and
 - means, responsive to the measured time being
 - 35 within the call blocking time interval, for not activating any of the plurality of alerters and for routing the incoming call to a mailbox whereby a voice message is

- 50 -

recordable.

85. A system as claimed in claim 84, wherein the
5 mailbox includes a plurality of mailboxes; further
comprising means for associating each predetermined call
treatment option with one mailbox of the plurality of
mailboxes; and wherein the means for routing the incoming
call to the mailbox includes means for recording the voice
10 message in the one mailbox associated with the particular
call treatment.

86. A system as claimed in claim 84 or 85, comprising:
15 means for providing, by the subscriber, an
indication representing do not disturb; and
means, responsive to the do not disturb
indication, for not activating any of the plurality of
alerters and for routing the incoming call to the mailbox.

20

87. A system as claimed in claim 82 or 83, comprising:
means for providing, by the subscriber, an
indication representing do not disturb; and
25 means, responsive to the do not disturb
indication, for not activating any of the plurality of
alerters and for routing the incoming call to a mailbox
whereby a voice message is recordable.

30

88. A system as claimed in claim 87, wherein the
mailbox includes a plurality of mailboxes; further
comprising means for associating each predetermined call
treatment option with one mailbox of the plurality of
35 mailboxes; and wherein the means for routing the incoming
call to the mailbox includes means for recording the voice
message in the one mailbox associated with the particular

- 51 -

call treatment.

89. A method as claimed in claim 82, wherein the
5 plurality telephone terminals include cordless handsets
(24); the telecommunications functions management system
includes a personal communications controller (10) which is
coupled to the telephone network by a communications line
10 (12, 22) of the telecommunications service subscriber; the
incoming call is answered by the personal communications
controller at which the steps of providing, associating,
prompting, receiving, correlating and activating are
effected; and the step of activating the one or more
15 alerters associated with the particular call treatment
includes signaling, by the personal communications
controller, over a wireless link the cordless handsets
associated with the one or more alerters.

20 90. A method as claimed in claim 89, wherein the
plurality of telephone terminals include telephone sets
(28) having respective satellite controllers (26) which are
connected in parallel to the communications line and each
of which controls operation of the alerter associated with
25 the corresponding telephone set; and the step of activating
the one or more alerters associated with the particular
call treatment includes signaling, by the personal
communications controller, the satellite controllers over
the communications line at a channel above a voice channel,
30 thereby addressing the satellite controllers associated
with the one or more alerters.

91. A method as claimed in claim 82, wherein the
35 telecommunications functions management system includes a
personal communications controller (10) which is coupled to
the telephone network by a communications line (12, 22) of

- 52 -

the telecommunications service subscriber; the plurality of telephone terminals include telephone sets (28) having respective satellite controllers (26) which are connected in parallel to the communications line and each of which
5 controls operation of the alerter associated with the corresponding telephone set; the incoming call is answered by the personal communications controller at which the steps of providing, associating, prompting, receiving, correlating and activating are effected; and the step of
10 activating the one or more alerters associated with the particular call treatment includes signaling, by the personal communications controller, the satellite controllers over the communications line at a channel above a voice channel, thereby addressing the satellite
15 controllers associated with the one or more alerters.

92. In a telecommunications functions management system for a telecommunications service subscriber having a
20 one or more telephone terminals (16) associated with a one or more alerters which are operable at a plurality of cadences, said one or more telephone terminals being communicatively coupled to a telecommunications network (14), a method for managing alerting of an incoming call
25 directed to the service subscriber, comprising the steps of:

providing one or more predetermined call treatment options;

30 associating each predetermined call treatment option with one cadence of the plurality of cadences;

prompting the incoming call with the predetermined call treatment options;

receiving an input selection from the incoming call;

35 correlating the input selection to a particular call treatment of the one or more predetermined call treatment options; and

- 53 -

activating the one or more alerters to operate at the one cadence associated with the particular call treatment.

5

93. A method as claimed in claim 92, comprising the steps of:

measuring time;

providing a call blocking time interval; and

10

responsive to the measured time being within the call blocking time interval, not activating any of the one or more alerters and routing the incoming call to a mailbox whereby a voice message is recordable.

15

94. A method as claimed in claim 93, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and
20 wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox associated with the particular call treatment.

25

95. A method as claimed in claim 93 or 94, comprising the steps of:

providing, by the subscriber, an indication representing do not disturb; and

30 responsive to the do not disturb indication, not activating any of the plurality of alerters and routing the incoming call to the mailbox.

35

96. A method as claimed in claim 92, comprising the steps of:

providing, by the subscriber, an indication representing do not disturb; and

responsive to the do not disturb indication, not activating any of the plurality of alerters and routing the incoming call to a mailbox whereby a voice message is recordable.

5

97. A method as claimed in claim 96, wherein the mailbox includes a plurality of mailboxes; further comprising associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and
10 wherein the step of routing the incoming call to the mailbox includes recording the voice message in the one mailbox associated with the particular call treatment.

15

98. For a telecommunications service subscriber having a one or more telephone terminals (16) associated with a one or more alerters which are operable at a plurality of cadences, said one or more telephone terminals being
20 communicatively coupled to a telecommunications network (14), a system for managing alerting of an incoming call directed to the subscriber, comprising:

means for providing one or more predetermined call treatment options;

25 means for associating each predetermined call treatment option with one cadence of the plurality of cadences;

means for prompting the incoming call with the predetermined call treatment options;

30 means for receiving an input selection from the incoming call;

means for correlating the input selection to a particular call treatment of the one or more predetermined call treatment options; and

35 means for activating the one or more alerters to operate at the one cadence associated with the particular call treatment.

- 55 -

99. A system as claimed in claim 98, comprising:
means for measuring time;
5 means for providing a call blocking time interval;
and
means, responsive to the measured time being
within the call blocking time interval, for not activating
any of the one or more alerters and for routing the
10 incoming call to a mailbox whereby a voice message is
recordable.

100. A system as claimed in claim 99, wherein the
15 mailbox includes a plurality of mailboxes; further
comprising means for associating each predetermined call
treatment option with one mailbox of the plurality of
mailboxes; and wherein the means for routing the incoming
call to the mailbox includes means for recording the voice
20 message in the one mailbox associated with the particular
call treatment.

101. A system as claimed in claim 99 or 100,
25 comprising:
means for providing, by the subscriber, an
indication representing do not disturb; and
means, responsive to the do not disturb
indication, for not activating any of the plurality of
30 alerters and for routing the incoming call to the mailbox.

102. A system as claimed in claim 98, comprising:
means for providing, by the subscriber, an
35 indication representing do not disturb; and
means, responsive to the do not disturb
indication, for not activating any of the plurality of

- 56 -

alerter and for routing the incoming call to a mailbox whereby a voice message is recordable.

5 103. A system as claimed in claim 102, wherein the mailbox includes a plurality of mailboxes; further comprising means for associating each predetermined call treatment option with one mailbox of the plurality of mailboxes; and wherein the means for routing the incoming
10 call to the mailbox includes means for recording the voice message in the one mailbox associated with the particular call treatment.

15 104. A method as claimed in claim 98, wherein the one or more telephone terminals include cordless handsets (24); the telecommunications functions management system includes a personal communications controller (10) which is coupled to the telephone network by a communications line (12, 22)
20 of the telecommunications service subscriber; the incoming call is answered by the personal communications controller at which the steps of providing, associating, prompting, receiving, correlating and activating are effected; and the step of activating the one or more alerters to operate at
25 the one cadence associated with the particular call treatment includes signaling, by the personal communications controller, over a wireless link the cordless handsets associated with the one or more alerters.

30 105. A method as claimed in claim 104, wherein the one or more telephone terminals include telephone sets (28) having respective satellite controllers (26) which are connected in parallel to the communications line and each
35 of which controls operation of the alerter associated with the corresponding telephone set; and the step of activating the one or more alerters to operate at the one cadence

- 57 -

associated with the particular call treatment includes signaling, by the personal communications controller, the satellite controllers over the communications line at a channel above a voice channel, thereby addressing the
5 satellite controllers associated with the one or more alerters.

106. A method as claimed in claim 98, wherein the
10 telecommunications functions management system includes a personal communications controller (10) which is coupled to the telephone network by a communications line (12, 22) of the telecommunications service subscriber; the one or more telephone terminals include telephone sets (28) having
15 respective satellite controllers (26) which are connected in parallel to the communications line and each of which controls operation of the alerter associated with the corresponding telephone set; the incoming call is answered by the personal communications controller at which the
20 steps of providing, associating, prompting, receiving, correlating and activating are effected; and the step of activating the one or more alerters to operate at the one cadence associated with the particular call treatment includes signaling, by the personal communications
25 controller, the satellite controllers over the communications line at a channel above a voice channel, thereby addressing the satellite controllers associated with the one or more alerters.

30
107. In a telecommunications functions management system for a telecommunications service subscriber having a plurality of telephone terminals (16) communicatively coupled to a telecommunications network (14), a method for
35 managing outgoing calls originating from any of the plurality of telephone terminals, comprising the steps of:

- 58 -

providing one or more predetermined block call identifiers;

associating each predetermined block call identifier with one or more telephone terminals of the plurality of telephone terminals;

correlating a directory number of one outgoing call to a particular block call identifier of the one or more predetermined block call identifiers;

identifying one terminal of the plurality of telephone terminals at which the one outgoing call is being originated; and

blocking, responsive to the one terminal being associated with the particular block call identifier, the one outgoing call.

15

108. A method as claimed in claim 107, comprising the steps of:

associating one or more telephone terminals of the plurality of telephone terminals with respective toll time limits;

measuring, for each of the one or more telephone terminals associated with the respective toll time limits, cumulative time of toll calls from that terminal; and

blocking, responsive to determining the one outgoing call corresponds to a toll call and the one terminal has a toll time limit associated therewith, the one outgoing call if the measured cumulative time for the one terminal effectively reaches the toll time limit.

30

109. A method as claimed in claim 107 or 108, comprising the steps of:

providing one or more predetermined timed call identifiers;

associating each predetermined timed call identifier with one or more telephone terminals of the

- 59 -

plurality of telephone terminals and with a time limit;
measuring, for each of the one or more
predetermined timed call identifiers when outgoing calls
correlated thereto originate from any of the one or more
5 telephone terminals associated therewith, cumulative time
of the outgoing calls corresponding to that timed call
identifier;

correlating the directory number to a particular
timed call identifier of the one or more predetermined
10 timed call identifiers; and

blocking, responsive to the one terminal being
associated with the particular timed call identifier and
the measured cumulative time for the particular timed call
identifier effectively reaches the time limit associated
15 therewith, the one outgoing call.

110. For a telecommunications service subscriber having
a plurality of telephone terminals (16) communicatively
20 coupled to a telecommunications network (14), a system for
managing outgoing calls originating from any of the
plurality of telephone terminals, comprising:

means for providing one or more predetermined
block call identifiers;

25 means for associating each predetermined block
call identifier with one or more telephone terminals of the
plurality of telephone terminals;

means for correlating a directory number of one
outgoing call to a particular block call identifier of the
30 one or more predetermined block call identifiers;

means for identifying one terminal of the
plurality of telephone terminals at which the one outgoing
call is being originated; and

means for blocking, responsive to the one terminal
35 being associated with the particular block call identifier,
the one outgoing call.

- 60 -

111. A system as claimed in claim 110, comprising:

means for associating one or more telephone
5 terminals of the plurality of telephone terminals with
respective toll time limits;

means for measuring, for each of the one or more
telephone terminals associated with the respective toll
time limits, cumulative time of toll calls from that
10 terminal; and

means for blocking, responsive to determining the
one outgoing call corresponds to a toll call and the one
terminal has a toll time limit associated therewith, the
one outgoing call if the measured cumulative time for the
15 one terminal effectively reaches the toll time limit.

112. A system as claimed in claim 110 or 111,
comprising:

20 means for providing one or more predetermined
timed call identifiers;

means for associating each predetermined timed
call identifier with one or more telephone terminals of the
plurality of telephone terminals and with a time limit;

25 means for measuring, for each of the one or more
predetermined timed call identifiers when outgoing calls
correlated thereto originate from any of the one or more
telephone terminals associated therewith, cumulative time
of the outgoing calls corresponding to that timed call
30 identifier;

means for correlating the directory number to a
particular timed call identifier of the one or more
predetermined timed call identifiers; and

35 means for blocking, responsive to the one terminal
being associated with the particular timed call identifier
and the measured cumulative time for the particular timed
call identifier effectively reaches the time limit

- 61 -

associated therewith, the one outgoing call.

113. A telecommunications functions management system,
5 comprising:

a plurality of telephone terminals (16) associated with a plurality of alerters, each telephone terminal being adapted to communicate through a subscriber loop (12, 22) with a telecommunications network (14); and

10 a personal communications controller (10), coupled to the subscriber loop, for controlling dependent upon predetermined operational parameters (52), operation of the plurality of alerters in response to an incoming call from the telecommunications network and access of each telephone
15 terminal to the telecommunications network in response to an outgoing call originated from that terminal;

a computer station (20) at which data defining the predetermined operation parameters is generated; and

20 means for downloading the data from the computer to the personal communications controller.

114. A system as claimed in claim 113, wherein the means for downloading the data includes respective modems
25 in the personal communications controller and the computer workstation, and the subscriber loop carries the data therebetween.

30 115. A system as claimed in claim 113, wherein the means for downloading the data includes a dedicated serial data link (30) between the personal communications controller and the computer workstation.

35 116. A system as claimed in claim 113, 114 or 115, wherein the plurality of telephone terminals includes one

- 62 -

or more cordless handsets (24); and the personal communications controller includes means for signaling, over a wireless link, each handset to control the operation of the alerter associated therewith.

5

117. A system as claimed in claim 113, 114, 115 or 116, wherein the plurality of telephone terminals includes one or more telephone sets (28) having respective satellite
10 controllers (26) which are connected in parallel to the subscriber loop; and the personal communications controller includes means for signaling, over the subscriber loop at a channel above a voice channel, each satellite controller to control the operation of the alerter associated with the
15 corresponding telephone set.

118. A system as claimed in claim 117, wherein each satellite controller includes a switch which, in a closed
20 position, couples the corresponding telephone set to the subscriber loop and, in an open position, disconnects the corresponding telephone set from the subscriber loop; and the personal communications controller includes means for signaling each satellite controller to select either the
25 open position or the closed position for its switch.

119. A system as claimed in claim 118, wherein the predetermined operational parameters includes one or more
30 predetermined call identifiers, each being associated with one or more terminal identifiers; and the personal communications controller includes:

means for receiving, for the telecommunications network, an identifier of the incoming call; and

35 means for signaling, responsive to correlating the incoming call identifier to a particular call identifier of the one or more predetermined call identifiers, to activate

- 63 -

the alerters corresponding to the one or more terminal identifiers associated with the particular call identifier.

1/12

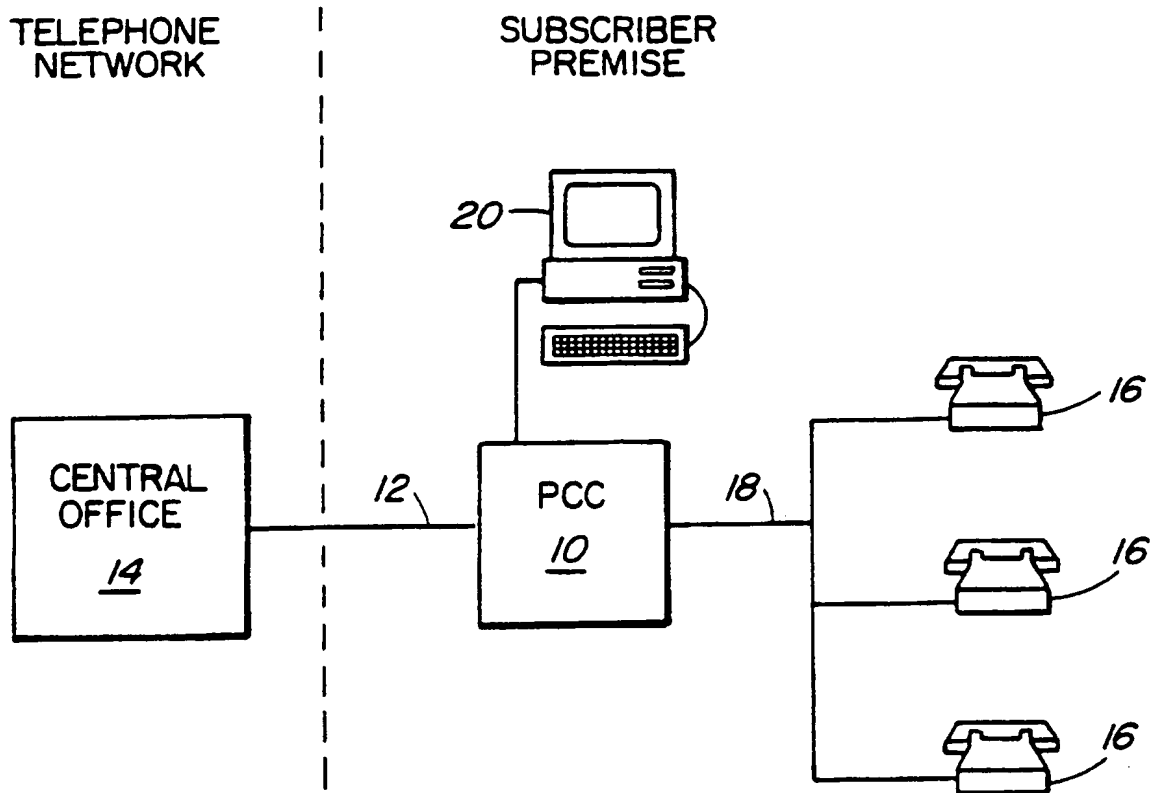


FIG. 1

2/12

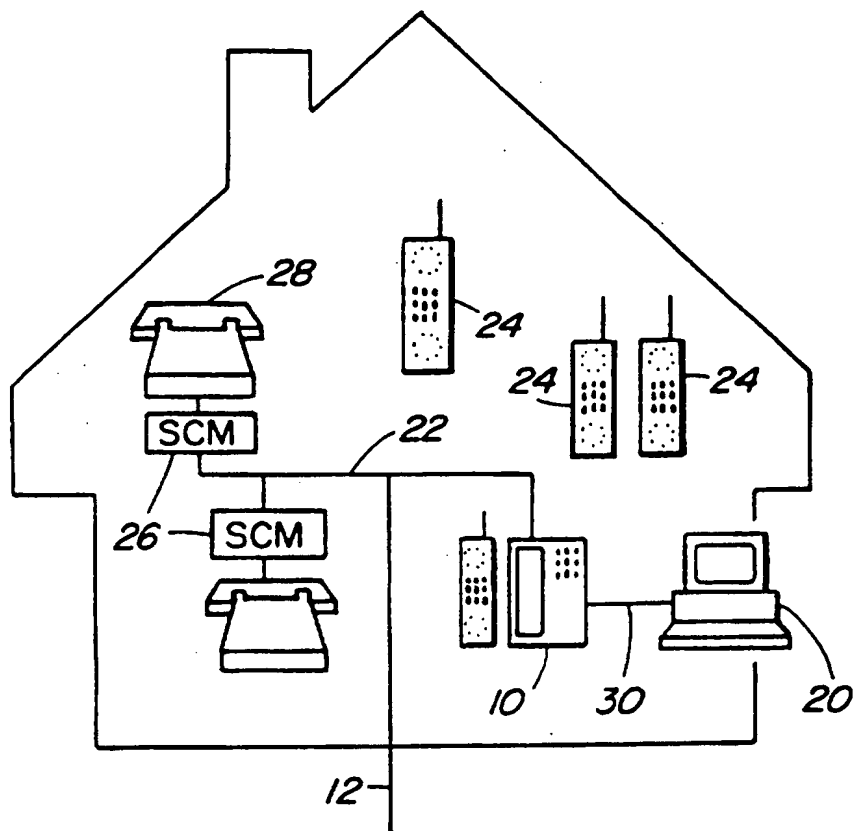


FIG. 2a

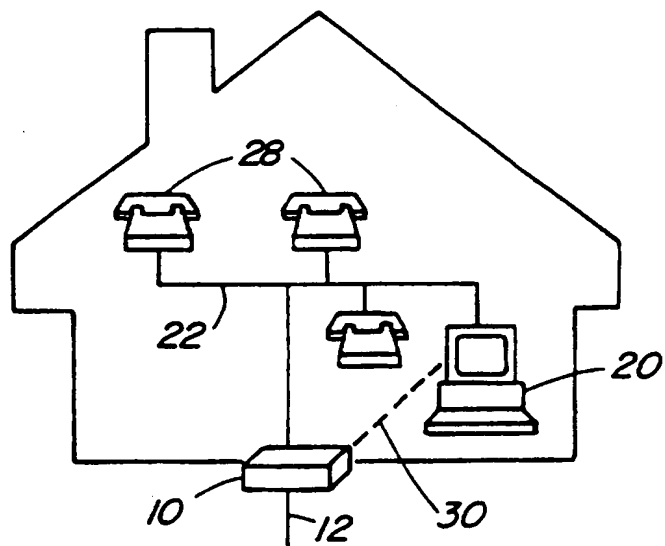


FIG. 2b

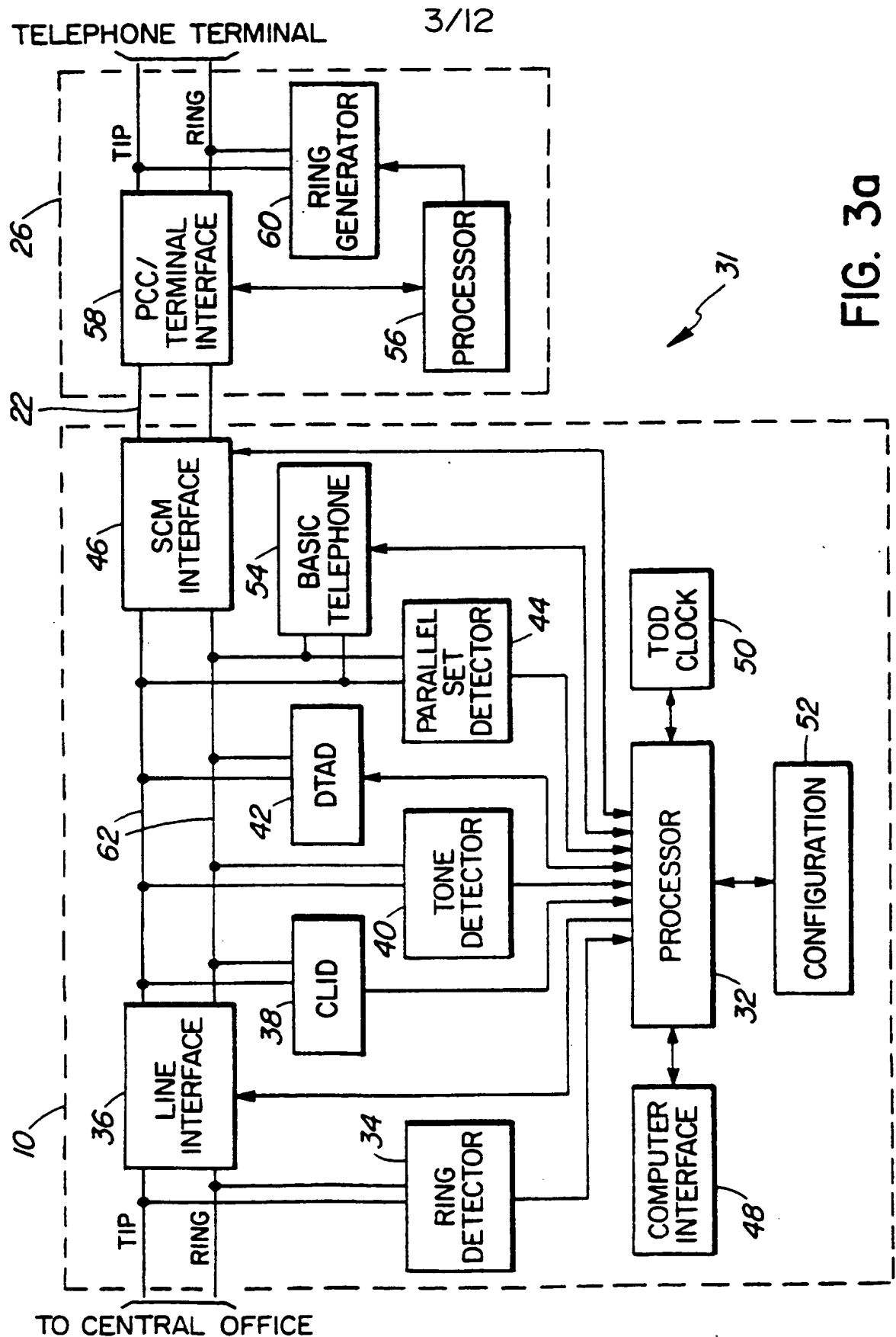


FIG. 3a

4/12

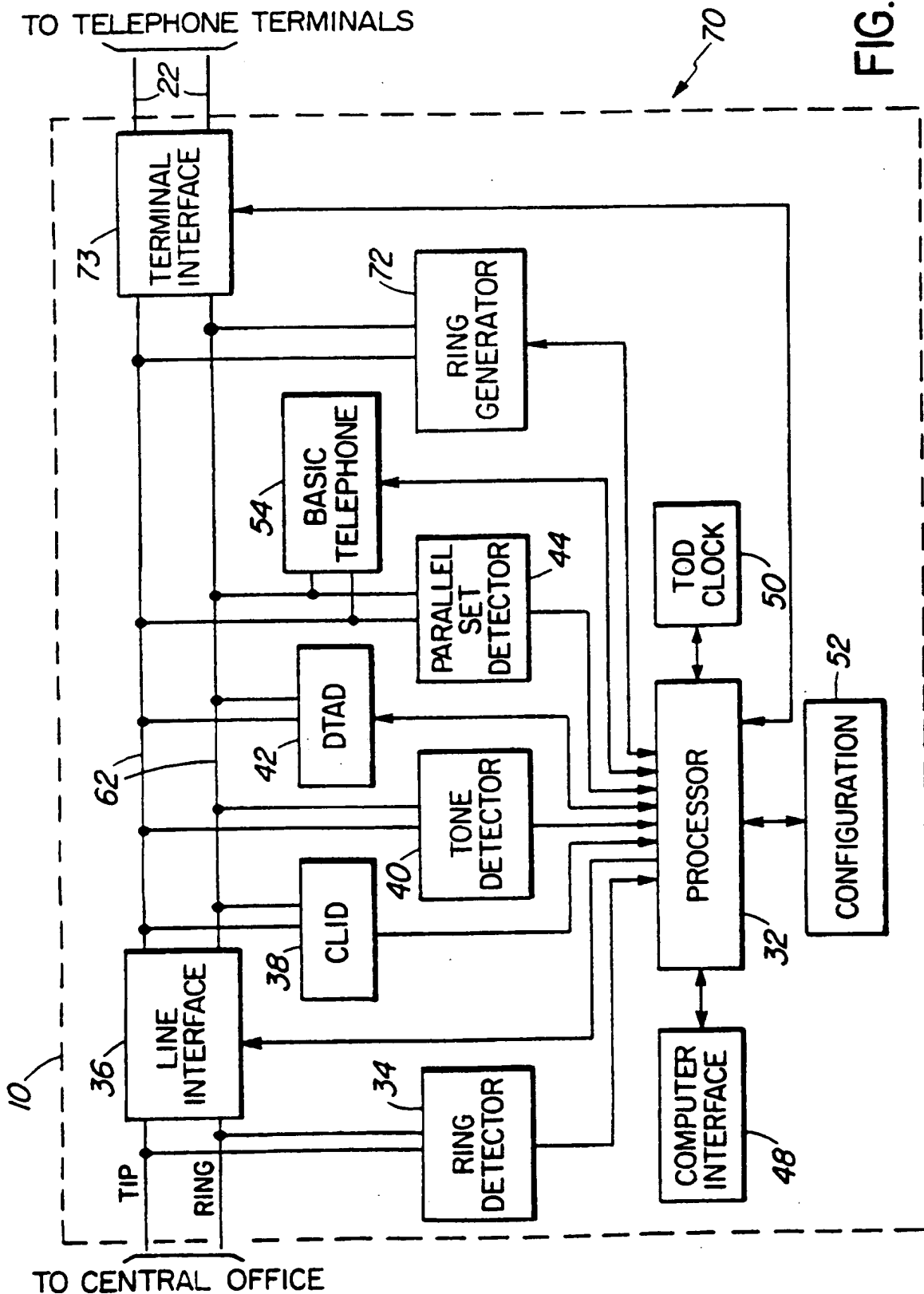
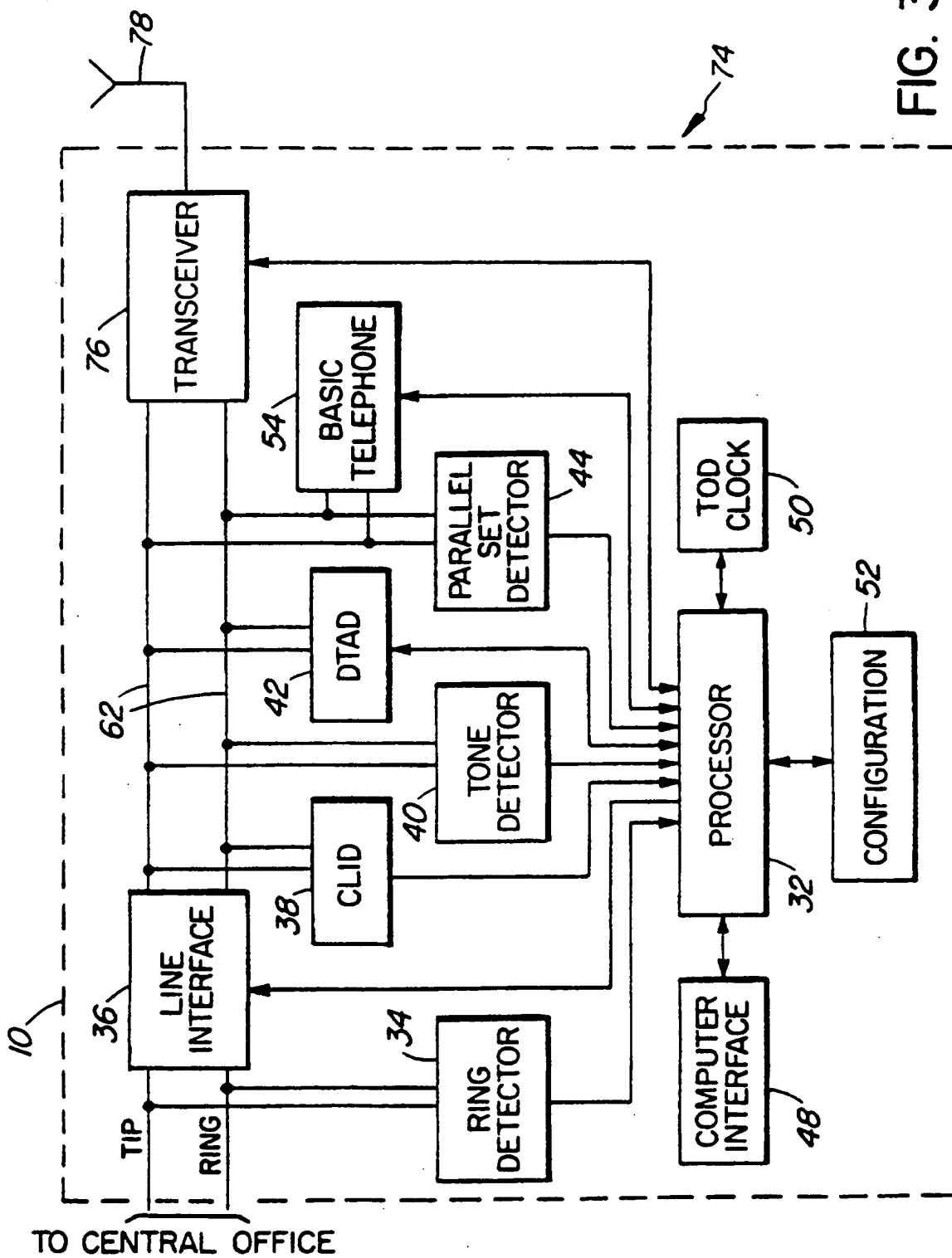


FIG. 3b

5/12



6/12

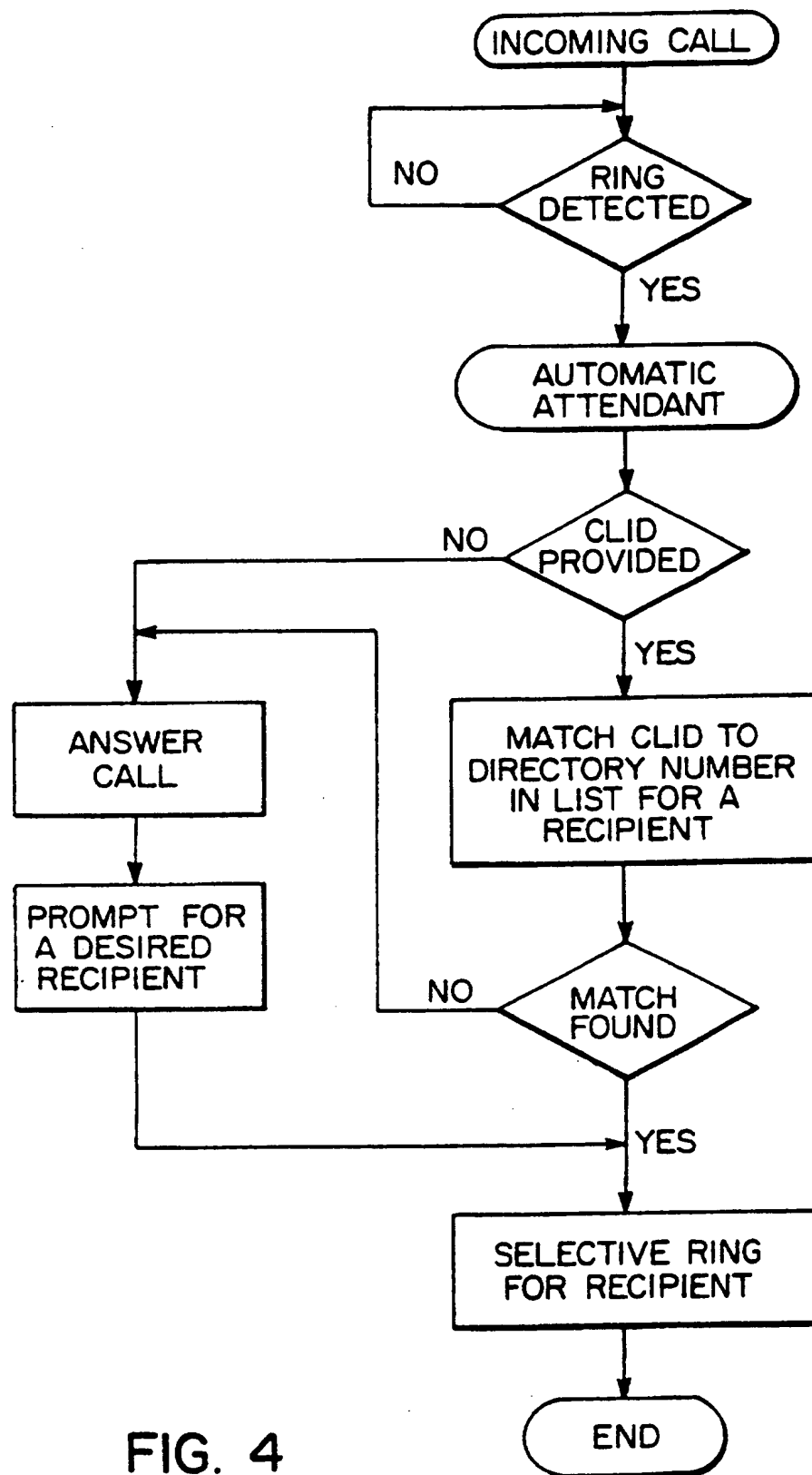


FIG. 4

7/12

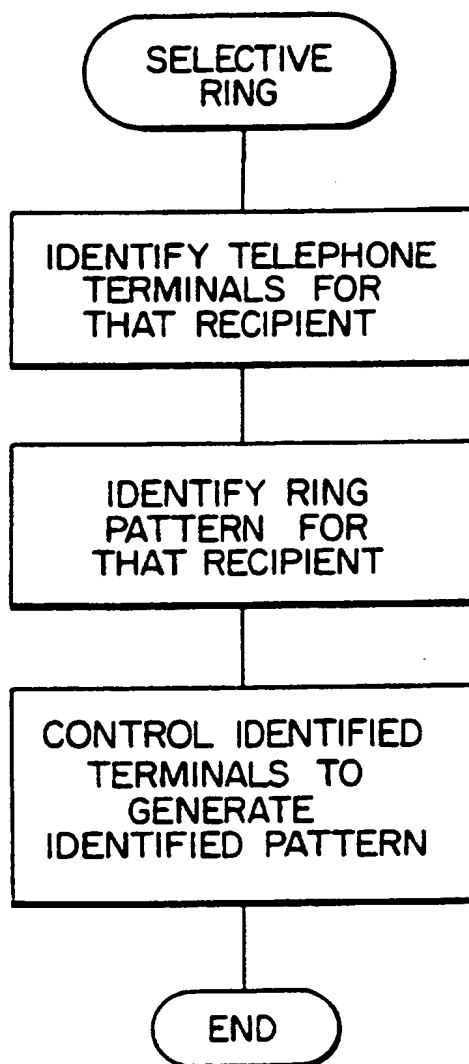


FIG. 5

8/12

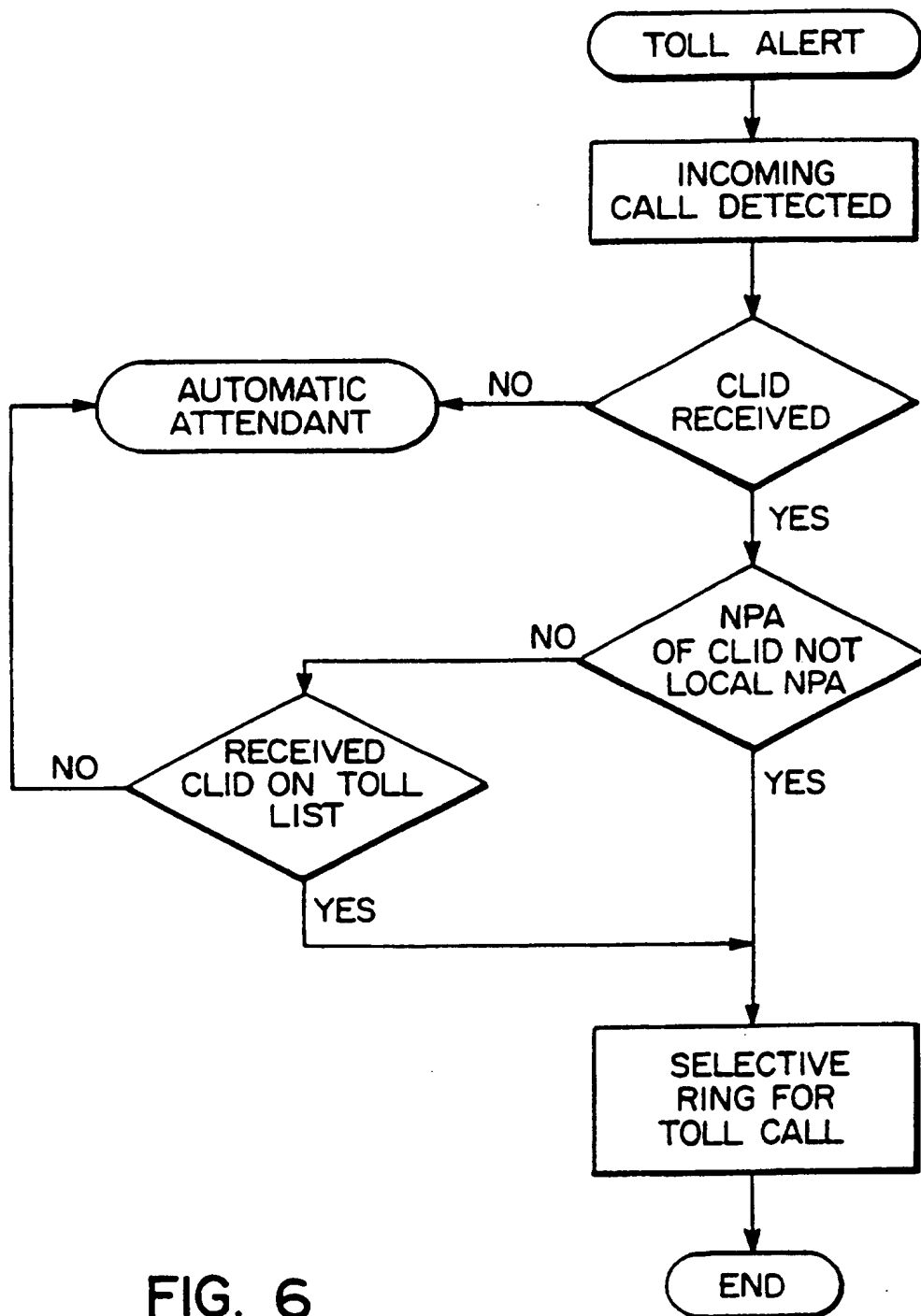


FIG. 6

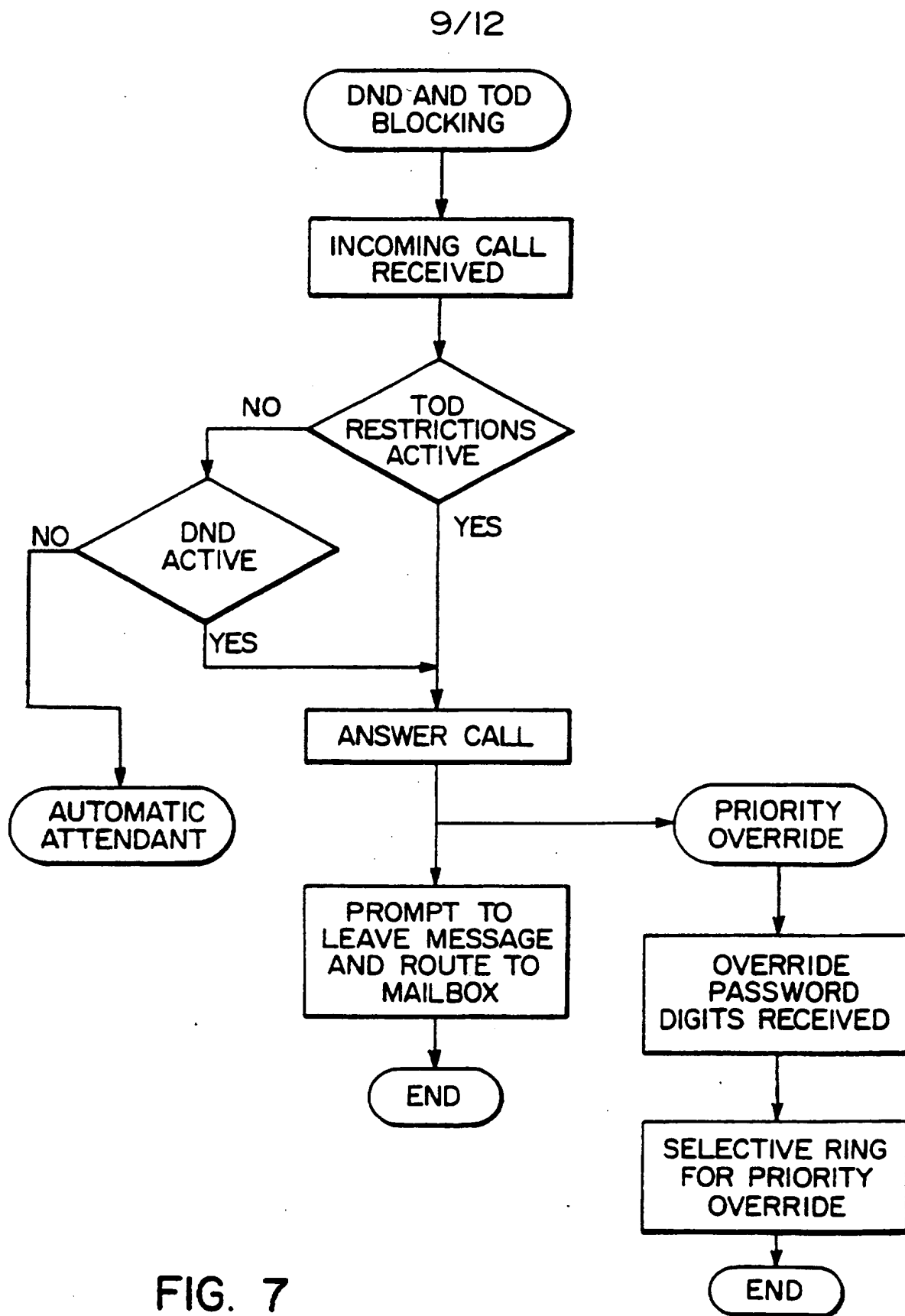


FIG. 7

10/12

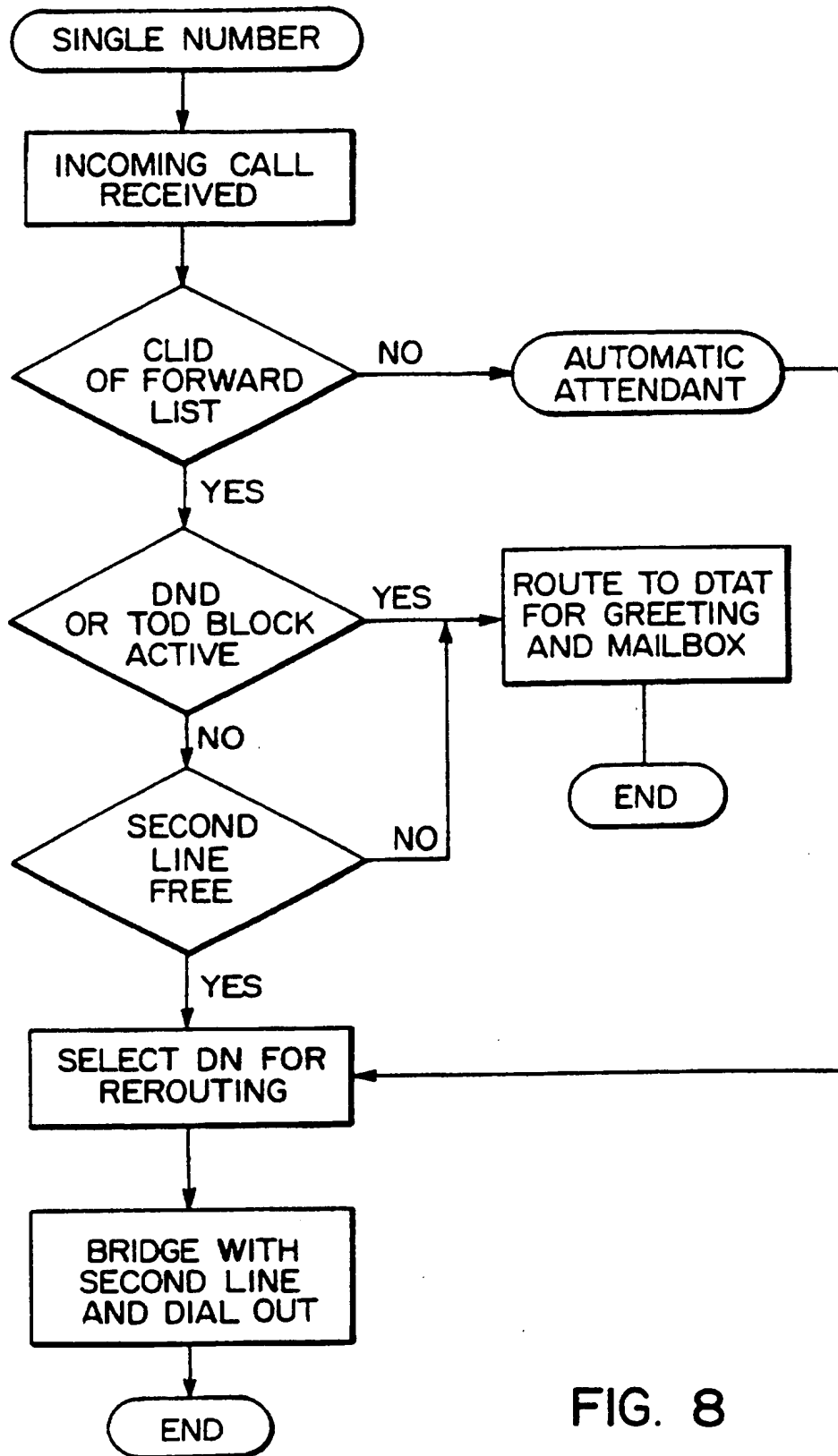


FIG. 8

11/12

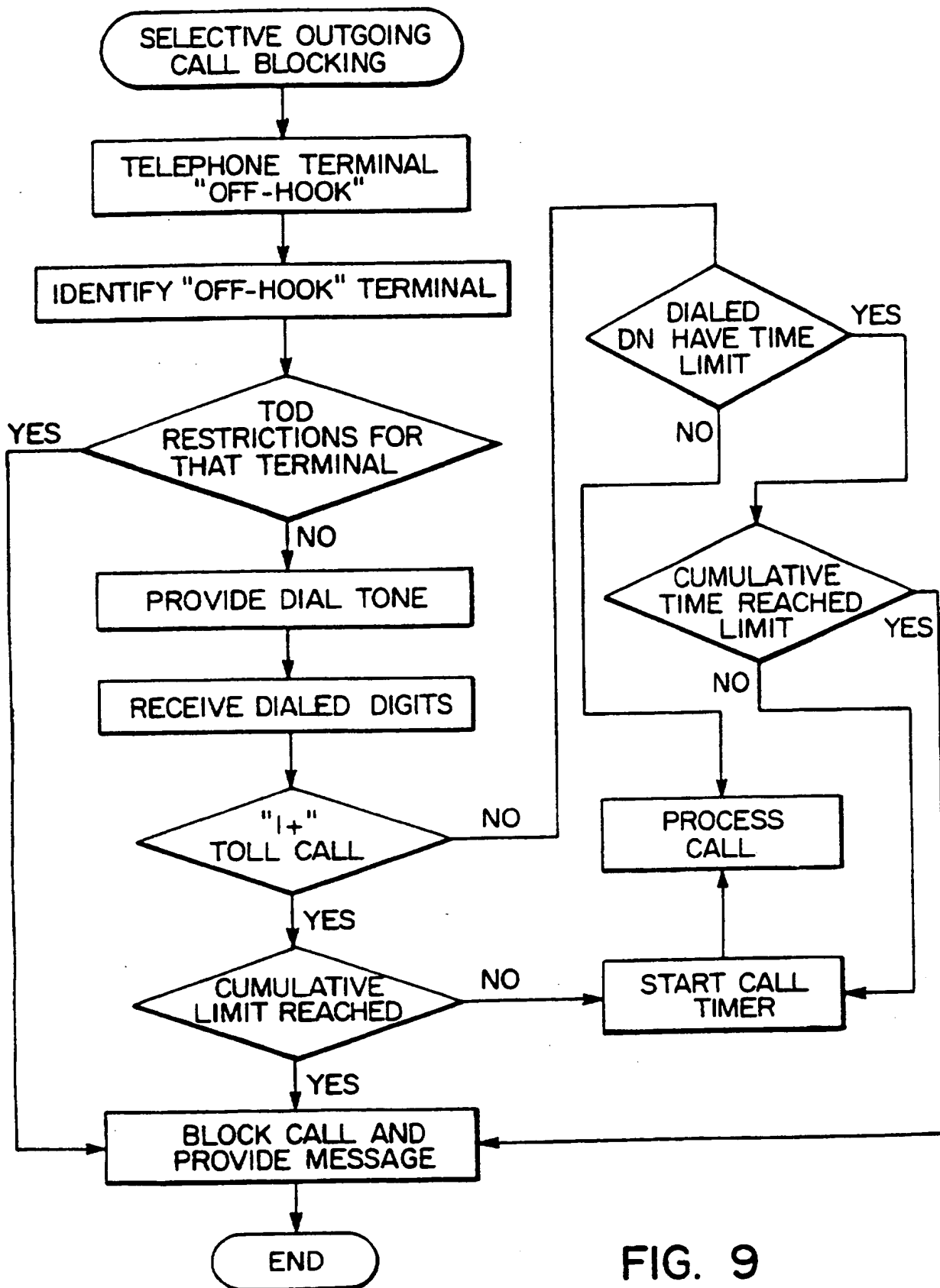


FIG. 9

12/12

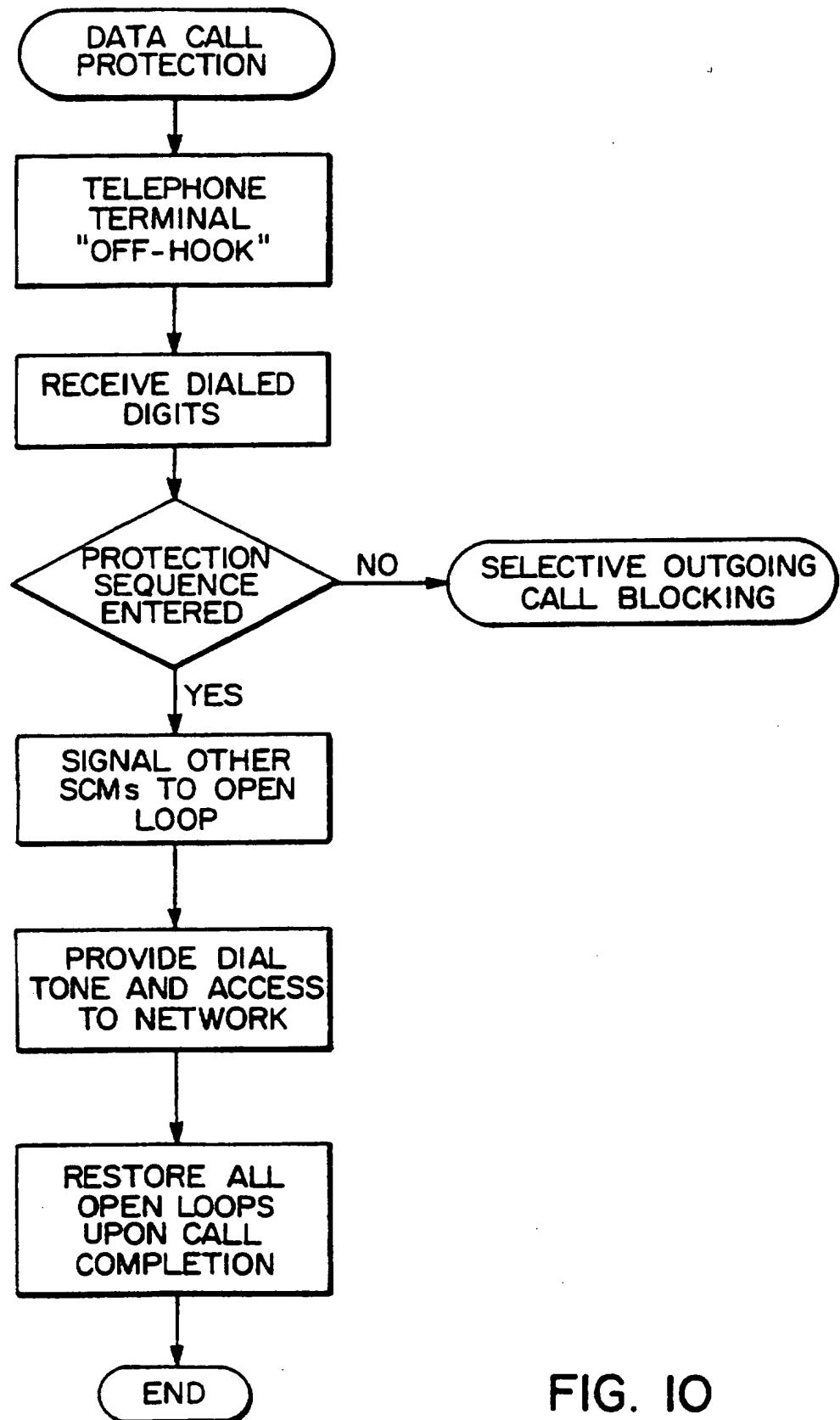


FIG. 10

INTERNATIONAL SEARCH REPORT

Internat Application No
PCT/CA 97/00059A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04M1/57 H04M1/66 H04M1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 91 07041 A (ANDERSON JOHN JAMES) 16 May 1991	1,2,18, 19,38, 55,107, 110, 113-115
Y	see page 3, line 22 - page 29, line 3 see page 64, line 17 - page 121, line 24; figures 1-27	5,6, 11-13, 22,23, 28-30, 37,42, 43, 48-50, 59,60, 65-67,74
	see page 127, line 8 - page 180, line 31; figures 35-59	

	-/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *Z* document member of the same patent family

Date of the actual completion of the international search

25 April 1997

Date of mailing of the international search report

29.05.97

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+ 31-70) 340-3016

Authorized officer

Delangue, P

INTERNATIONAL SEARCH REPORT

Internat Application No
PCT/CA 97/00059

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 200 994 A (SASANO ET AL) 6 April 1993	1,2,18, 19,38,55
Y	see column 6, line 50 - column 11, line 65; figures 1-13	5,6, 11-13, 22,23, 28-30, 37,42, 43, 48-50, 59,60, 65-67,74
	see column 16, line 10 - column 20, line 42; figures 24-33	

X	WO 93 26132 A (SONY CORP) 23 December 1993	1,2,18, 19,38,55
A	see page 6, line 10 - page 28, line 4; figures 1-5	72,89, 104

Y	WO 91 12685 A (LEE) 22 August 1991	1-4, 18-21, 38-41, 55-58, 75,76, 82,83, 92,98
	see page 5, line 5 - page 28, line 14; figures 1-8	

Y	US 5 062 133 A (MELROSE) 29 October 1991	1-4, 18-21, 38-41, 55-58, 75,76, 82,83, 92,98
	see column 1, line 60 - column 11, line 34; figures 1-3	

Y	US 5 425 089 A (CHAN ET AL) 13 June 1995	107,110
A	see column 2, line 44 - column 9, line 68; figures 1-3	37,74, 91,106

Y	US 5 200 995 A (GAUKEL ET AL) 6 April 1993	107,110
A	see column 5, line 5 - column 20, line 38; figures 1-4	108,109, 111,112

A	US 5 357 558 A (YOSHIKAWA) 18 October 1994	35,72, 89,104
	see column 3, line 49 - column 9, line 6; figures 2-6	

1	A WO 94 06254 A (ERICSSON BUSINESS MOBILE NETWORKS BV) 17 March 1994	35,72, 89,104
	see the whole document	

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internat Application No

PCT/CA 97/00059

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9107041 A	16-05-91	NONE	
US 5200994 A	06-04-93	JP 2051937 A	21-02-90
		JP 2111143 A	24-04-90
		CA 1315428 A	30-03-93
		US 5220599 A	15-06-93
WO 9326132 A	23-12-93	US 5559860 A	24-09-96
		EP 0598138 A	25-05-94
		JP 6510412 T	17-11-94
WO 9112685 A	22-08-91	NONE	
US 5062133 A	29-10-91	NONE	
US 5425089 A	13-06-95	NONE	
US 5200995 A	06-04-93	NONE	
US 5357558 A	18-10-94	JP 4245757 A	02-09-92
WO 9406254 A	17-03-94	NL 9201577 A	05-04-94
		AU 5157893 A	29-03-94
		CA 2144345 A	17-03-94
		EP 0659325 A	28-06-95
		FI 951099 A	09-03-95
		JP 8503579 T	16-04-96